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DOMESTIC ENGINEERING

TREASURY DEPARTMENT
PROCUREMENT DIVISION
WASHINGTON

OFFICE OF THE DIRECTOR

November 25, 1940

Mr. Wm. W. Gothard,
Editorial Director,
Domestic Engineering,
1900 Prairie Avenue,
Chicago, Illinois

My dear Mr. Gothard:

It was a pleasure to have a visit from you and Mr. Hallam, your Washington representative, on November 12, 1940, relative to your interest in the Defense Housing purchasing program.

Copies of the specifications for household equipment to be used have been furnished to you under separate cover and I am sure that publication in the December issue of DOMESTIC ENGINEERING will insure widespread dissemination.

The Procurement Division has been requested by the Public Buildings Administration of the Federal Works Agency to make purchases of heating and plumbing equipment, also related materials, as indicated by the specifications and I have been most pleased with the splendid cooperation of industry in their very evident endeavor to work closely with the Government in this major program.

Yours very truly,

Clifton E. Mack,
Director of Procurement

Industry and Homes....
America's 1st Line of Defense
Heating, Plumbing and Air Conditioning....
Vital to American Industry!

H. B. Mott, Pres.

E. C. Mott, V.-P.

READ this letter from the successful builders of over two thousand homes. They *know* Thrush System helps sell the homes they build. Tell the builders in your community about the advantages of Thrush equipment and get your share of this big small-home building boom.

WHY MOTT BROTHERS USE THRUSH SYSTEMS

Mott Brothers, Inc.
BUILDING SPECIFICATIONS
MOTORS BUILDING · BROADWAY AT FIFTY-SEVENTH STREET · NEW YORK
TELEPHONE COLUMBUS 5-1930

Mr. R. E. Lund, Manager
H. A. Thrush & Co.
3 S. Second Avenue
Mt. Vernon, New York

Dear Sir:

Our experience with steam and hot water heat in more than two thousand (2000) one family dwellings has demonstrated conclusively that the advantages of forced circulation hot water heat are tremendously greater than the slight difference in cost.

Proper venting and other distribution aids to provide a satisfactory steam installation so closely equal the cost of Thrush circulating equipment that we have discontinued offering steam heat for the last three (3) years.

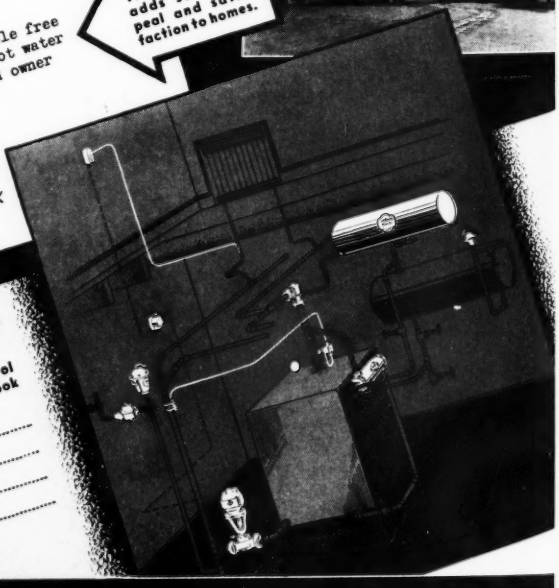
Fuel economy, even heat distribution and trouble free operation provide Thrush forced circulation hot water heat with the ever necessary sales appeal and owner satisfaction.

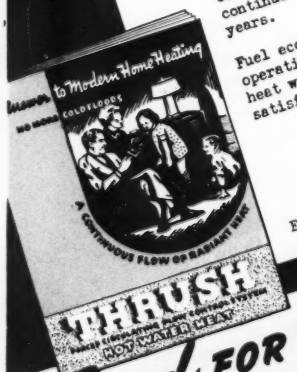
Very truly yours,
MOTT BROTHERS INC.
By

ECM:gvp

Read this letter — forced circulating hot water heat proves best.

Thrush System adds sales appeal and satisfaction to homes.





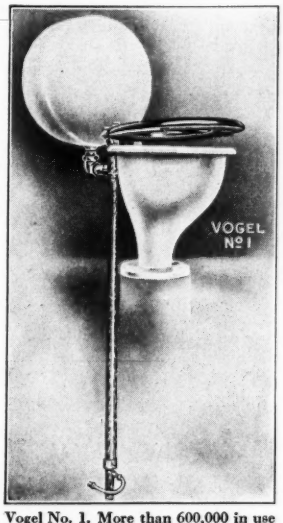
Send FOR THIS BOOK NOW!

Get the facts about the complete Thrush forced circulating Flow Control System for automatically fired hot water heating and a copy of this book which is designed to help you sell.

NAME..... ADDRESS..... CITY..... STATE.....

H. A. THRUSH & CO. • BOX 459 • PERU, INDIANA

Always on the Job!

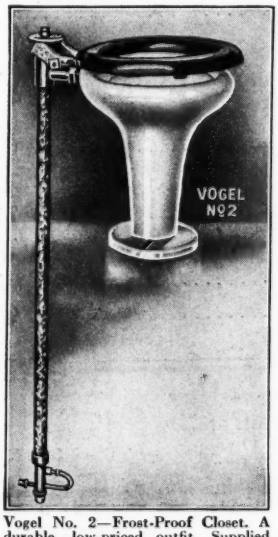


Vogel No. 1. More than 600,000 in use in all parts of the country. Cannot freeze no matter how cold the weather.

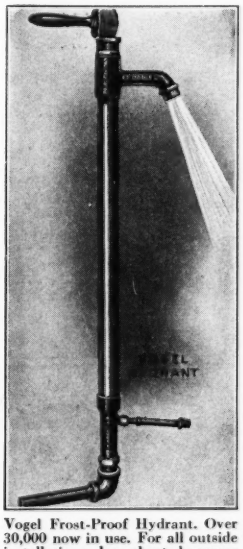
NO matter how cold the weather—no matter how hard the service, VOGEL Frost-Proof Closets and Hydrants keep operating. They are built to "stand the gaff." The few moving parts are made of high grade brass; construction is as simple as possible to assure freedom from repairs and adjustments. They are economical in the use of water.

Tell your customers about the extra service they get from VOGEL Frost-Proof Closets and Hydrants—it means extra profits for you and extra value for your customers.

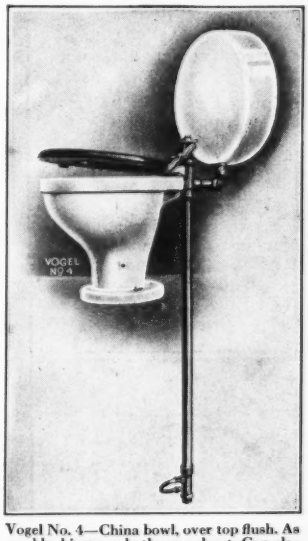
JOSEPH A. VOGEL COMPANY
Wilmington, Delaware



Vogel No. 2—Frost-Proof Closet. A durable, low-priced outfit. Supplied with enameled rim hopper and re-inforced hardwood seat.



Vogel Frost-Proof Hydrant. Over 30,000 now in use. For all outside installations, also unheated garages and service stations. Can never freeze no matter how low the temperature.



Vogel No. 4—China bowl, over top flush. As good looking as a bathroom closet. Can also be furnished with Vogel No. 15 valve which has vacuum breaker and ball check waste.

VOGEL PATENTED *Frost-Proof* **Products**

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

December, 1940

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HEATING COOLING AND AIR CONDITIONING *Equipment*

Trane Teamwork at N. U.

COMPACTLY located in a small equipment room is the Trane Turbo-Vacuum Compressor which furnishes chilled water to meet the air conditioning needs of beautiful Scott Hall at Northwestern University, Evanston, Ill. The cylindrical casing is visible behind the pillar. In the foreground are the gentlemen who teamed to achieve the desired results. (L to R) D. Warner, Trane Company; C. E. Crone, Jr., of Charles E. Crone Co., Ventilating Contractors; R. C. Wray, Jr., Davis Construction Co., Heating Contractors; W. A. Marriott, Supt. for R. C. Wieboldt Co., General Contractors; M. F. Hayford (kneeling), Supt. of Buildings and Grounds, Northwestern; R. E. Hattis, Consulting Engineer; G. F. Mannion, Trane Chicago Manager.

AIR^n

TRANE has what it takes to translate your eprints into profitable, workable applications of heat-, cooling, and air conditioning equipment of every cription.

Trane offers you "on the spot service" rendered by ty-five ably staffed offices throughout the country. e Trane representative near you is a man trained to laborate with architects, engineers, contractors, and dustrials, and complement your efforts with his broad owledge of equipment applications.

And Trane has the equipment to do your big job as ll as your small one—the most complete line of heat-, cooling, and air conditioning products commercially ailable. There's the Trane Turbo-Vacuum Compressor r large cooling and air conditioning work. There's ane Warm Water Heating for low cost housing de-lopments. There are Trane Unit Heaters, Climate hangers, Air Conditioners, Convectors, Coils, and ecialties in a multitude of sizes for every conceivable ating, cooling, or air conditioning requirement, resi-ntial, commercial, or industrial, *comfort or process.* The *Architects, Engineers, and Contractors* r American industry are looking to Trane more d more to meet industry's needs at a e when those needs are playing such a tal role in our national existence. . . .

NOW
Real Simplicity

WITH the Trane Turbo-Vacuum Compressor cold water for cooling and air conditioning is supplied as conveniently as from a kitchen faucet. . . . Self-contained, easy to install, weighs less, occupies less space. Available in 50, 70, 100, and 200 ton sizes.

TRANE

AIR^n

THE TRANE COMPANY LA CROSSE, WISCONSIN

Also **TRANE COMPANY OF CANADA LTD., TORONTO, ONTARIO**

Heating... Cooling... Air Conditioning Equipment from 85 Offices

Unit Heaters - Specialties - Convectors - Cooling Coils - Blast Coils - Unit Ventilators - Compressors - Air Conditioners - Low Pressure Refrigeration

Don't let RUST get in your CUSTOMERS' HAIR

Keep them happy... sell them tanks of non-rust EVERDUR METAL!

EVERY TIME you sell a tank of Everdur, you make a happier customer, a bigger sale, a bigger profit. What's more, most people know about Everdur—know that its higher first cost pays itself back in years and years of rust-free service. So, sell Everdur tanks. Push them hard and watch your profits grow.

Both gas and electric water heating rates are down. As they have decreased, water heater sales have gone up and up. Get your share of this business by offering units equipped with tanks of Everdur, the high strength, rust-proof copper-silicon alloy. Display them on your floor and talk about them when you call to make repairs. *It'll pay you back in increased sales and bigger profits!*

Everdur range boilers and automatic heaters with Everdur storage tanks are available from leading manufacturers.

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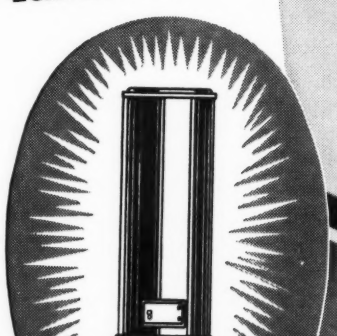

Everdur TANK METAL

ANACONDA from mine to consumer

THE AMERICAN BRASS COMPANY, General Offices: WATERBURY, CONN.

In Canada: Anaconda American Brass Ltd., New Toronto, Ont. • Subsidiary of Anaconda Copper Mining Co.

EVERDUR is a trade-mark of The American Brass Company, registered in the United States Patent Office.

BE ON THE LOOKOUT FOR SIMON DEGREE

WANTED

FOR HOLD-UP OF PRODUCTION

FINGERPRINT CLASSIFICATION

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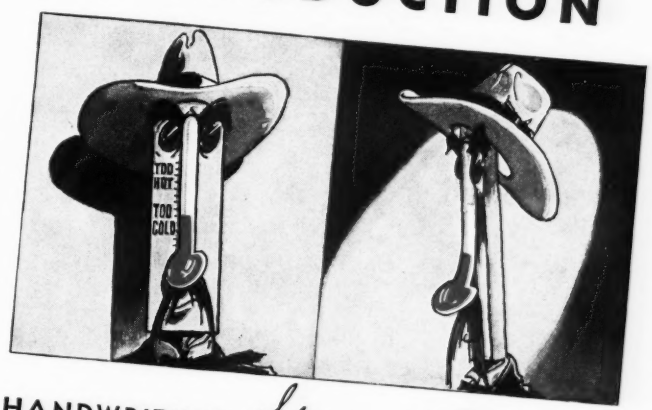


CRIMINAL RECORD

BOSTON—Convicted of obstructing national defense program by sabotage of industrial production.

CHICAGO—Contributing to employee discomfort, inefficiency; increasing time losses due to illness.

ATLANTA—Causing cold weather factory shutdowns.

PHILADELPHIA—Delaying shipments from factories.

SEATTLE—Padding fuel and maintenance bills.

DETROIT—Theft of profits.

ALIASES: "Simon Degree" is an alias . . . his real name is Inadequate Heating.

IF LOCATED, NOTIFY Modine representative, or your engineer and heating contractor AT ONCE.

HANDWRITING *Simon Degree*

LIBERAL REWARD WILL BE PAID FOR KEEPING HIM OUT OF FACTORIES, OFFICES, AND STORES

STOP HIM WITH MODINES AND COLLECT THE REWARD

Be a slick sleuth. Recognize Simon Degree for what he is—*inadequate heating.* Nab him *first* . . . and *collect the reward*...by selling Modine Unit Heaters for those new factories, offices or stores your prospects are building, or the ones they're modernizing or expanding.

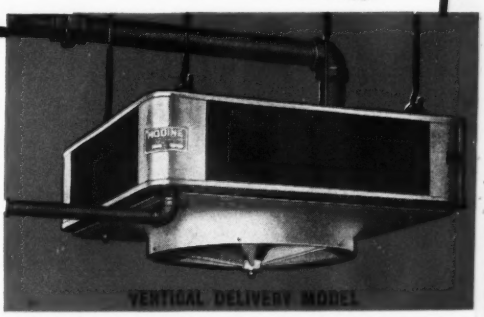
More Profit Prospects

Then their production and profits will be safe. Because you have given them the most modern, automatic heating—Modines. Faster, more effective...with greater fuel savings; lower maintenance and operation costs.

With Modine Unit Heaters their heating problem is *solved.* Management and workers alike are free to concentrate on *their* big job—making production meet new peak demands. Peak production pays peak profits for them. That's why Modines mean *peak profits* for you, too.

You Save Time With Modines

Time is money — to your customers *and yourself.* Modine patented direct-from-branch-supply-pipe suspension saves time as well as material and labor in installing. No disrupting delays. *Prompt delivery* is a *must* with Modine. And today is the day to write for Modine literature!



VERTICAL DELIVERY MODEL

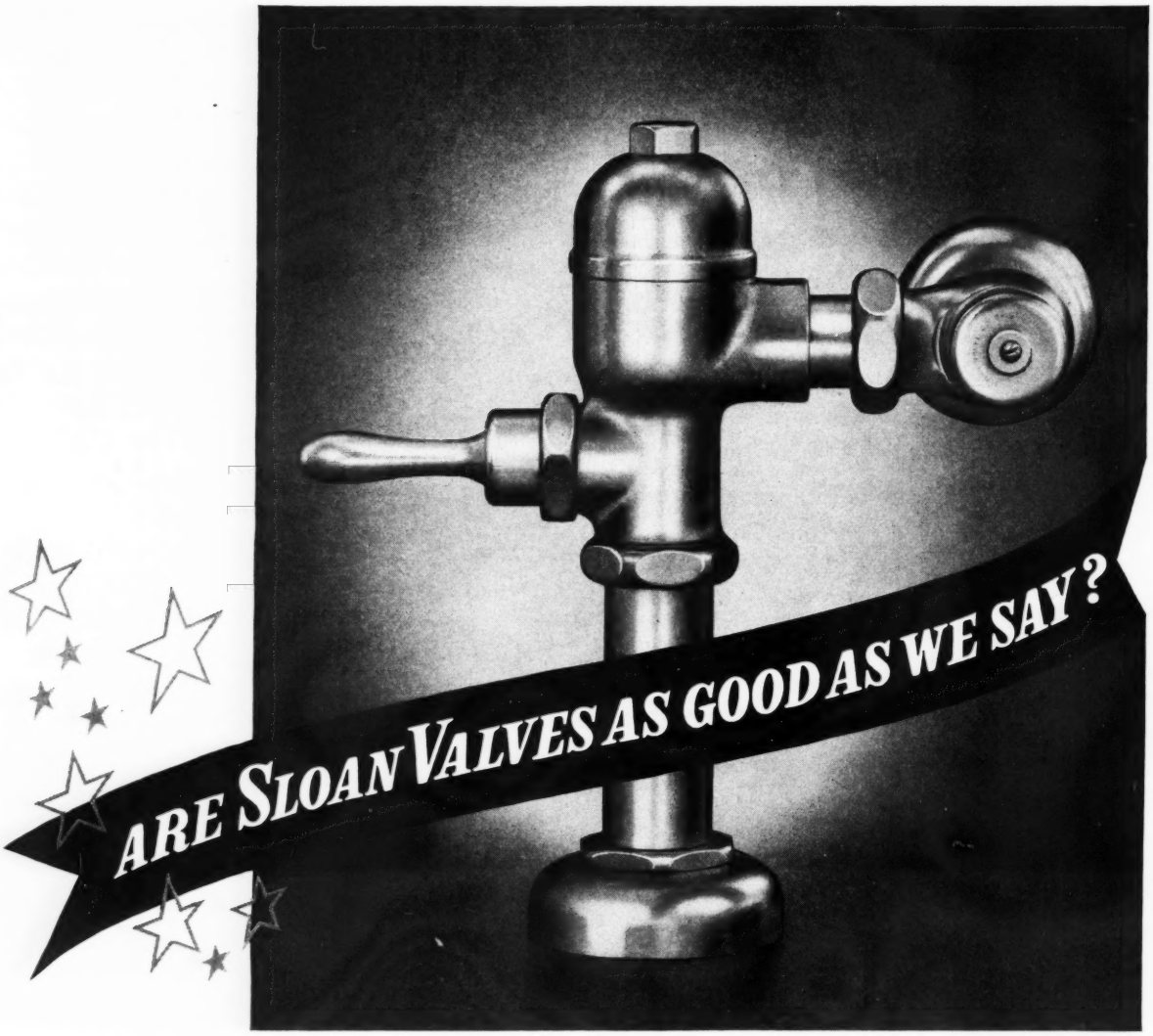
A Modine representative's name is in your phone book — "Where to Buy It" section under Heating Apparatus.

More Modines Are Sold Than Any Other Unit Heater

modine

THE UNIT HEATER WITH THE DIRECT-FROM-PIPE SUSPENSION

MODINE MANUFACTURING COMPANY, 1722 RACINE ST., RACINE, WIS.



★ At Stephens College (Columbia, Mo.) Sloan Star Valves are installed throughout eight dormitories, varying in age from six months to six years. *As yet not a single repair part has been purchased or needed.*

★ At Washington University (St. Louis, Mo.) Star Flush Valves have been installed in the Physics Building for three years, the Architectural Building for five years. and the School of Fine Arts for six years. *As yet no repair parts have been purchased or needed.*

★ *Architects:* JAMIESON & SPEARL, St. Louis, Mo.

★ In the 258-family Neighborhood Gardens Apartments (St. Louis, Mo.) Sloan Star Flush Valves have been operating for six and one-half years. *As yet no repairs have been purchased, no valve has been re-adjusted, not even a cover has been removed.*

These records, extraordinary as they may seem, are actually commonplace in every section of the country. In your locality there are dozens of Sloan installations. Find out for yourself if Sloan Flush Valves are as good as we say they are.

★ *Architects:* HOENER, BAUM & FROEBE, St. Louis, Mo.

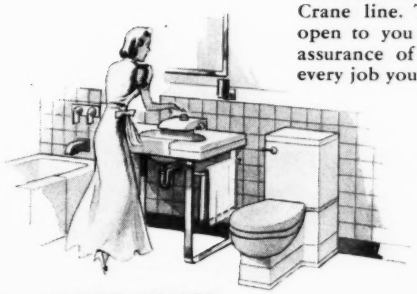
SLOAN VALVE COMPANY
4300 W. LAKE ST., CHICAGO

LOOKED AT ANY WAY THE ANSWER IS CRANE

SMALL home or large—school, hospital or industrial plant—no matter what the installation calls for, you will find it in the complete Crane line. This wide selection of products, open to you when you specify Crane, is your assurance of the right kind of plumbing for every job you install.

SMALL HOMES

Small homes mean compact, efficient fixtures; also a tendency to low budgets. In the Crane line are lavatories, closets, bathtubs and sinks specially designed for the small home and priced to suit the modest budget.

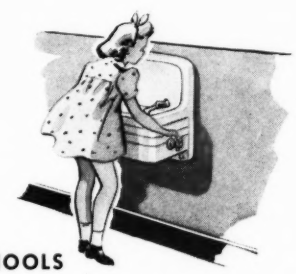


LARGE HOMES

The large home frequently demands the latest in plumbing design as well as the maximum in convenience features. The Crane reputation for high quality is built upon Crane leadership in this field.

PUBLIC BUILDINGS

Unusual service demands unusual performance—the Crane line of plumbing for public buildings is designed to meet the severe demands of this type of service. Hotels, institutions, office buildings and government buildings—all recognize the serviceability and quality that is inherent in Crane fixtures.

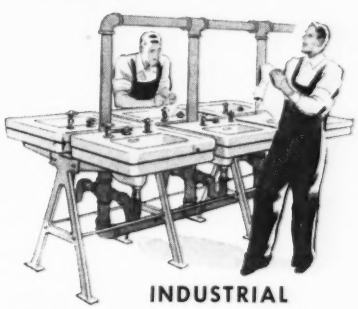


SCHOOLS

School service demands plumbing of more than usual quality. Crane equipment for schools has found a ready acceptance by boards of education because of its high quality coupled with its precise design to suit school needs.

HOSPITALS

Crane plumbing for hospitals is specially designed to meet the exacting demands of these institutions. The seal of approval of the American College of Surgeons is the guarantee of high standard in design and manufacture of Crane hospital plumbing.



INDUSTRIAL

Plant efficiency and plant sanitation in these periods of increased industrial activity demand plumbing high in quality, designed to meet specific industrial requirements. In the Crane line of industrial plumbing, you will find specially designed equipment—Crane quality throughout, built to the specifications of industry.

1940 OUR 85th YEAR

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

Our Easy Payment Plan offers you a big opportunity to make more sales this month!

DURING DECEMBER people are pressed for cash. That's why the easiest, surest way to sell more AMERICAN Heating Equipment and "Standard" Plumbing Fixtures is on our Easy Payment Plan. Under its liberal terms your customers need make no down payment—needn't pay one penny for two calendar months—*till long after the holidays*. Then low monthly payments start with up to 3 years to pay. Best of all, you get *prompt full cash on installation*, without holdbacks, without recourse!

In addition, you have the extra sales advantage of the complete, famous line of AMERICAN Heating Equipment and "Standard" Plumbing Fixtures. There are Boilers, Furnaces and Air Conditioners in all sizes for Coal—stoker or hand-fired—Oil or Gas—plus virtually every other product to meet all needs. "Standard" Plumbing Fixtures for bathrooms and kitchens are available in an unsurpassed range of styles, in white and 11 beautiful colors.

Start selling AMERICAN Heating Equipment and "Standard" Plumbing Fixtures on our Easy Payment Plan now—enjoy an exceptionally prosperous Christmas Season this year! Consult your Wholesale Distributor for full details or write to us today.

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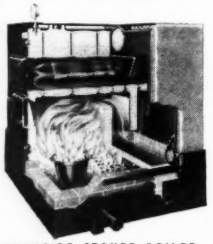
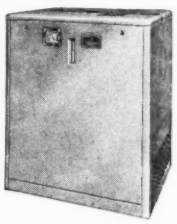


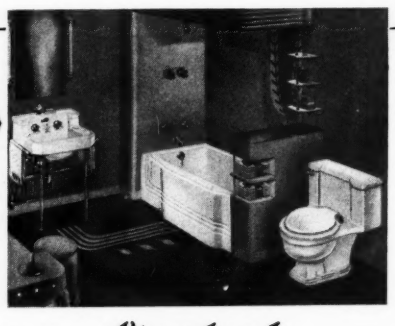
ARCOFIRE STOKER BOILER Specially designed for automatic coal firing only. Many outstanding features.

"EMPIRE" IDEAL GAS BOILER Highly efficient, completely automatic, smart grey enameled jacket. All sizes.



IDEAL OIL BOILER NO. 6 A low-cost, high quality Boiler for small homes. Many outstanding features.

AMERICAN HEATING EQUIPMENT
COST NO MORE THAN OTHERS
"Standard" PLUMBING FIXTURES



IN THIS BEAUTIFUL "Standard" BATHROOM convenience and beauty are combined. Featured are the Companion Lavatory, Master Pembroke Bath with rim seat and the One-Piece Closet.

AMERICAN RADIATOR & Standard Sanitary
New York **CORPORATION** *Pittsburgh*

Cast Iron & Steel Boilers & Furnaces for Coal, Oil, Gas • Radiators • Cast Iron Enameled & Vitreous China Plumbing Fixtures & Plumbers' Brass Goods • Air Conditioners • Coal & Gas Water Heaters • Oil Burners • Heating Accessories

★ ★ DEFEND OUR COUNTRY. ENLIST NOW IN THE U. S. REGULAR ARMY ★ ★

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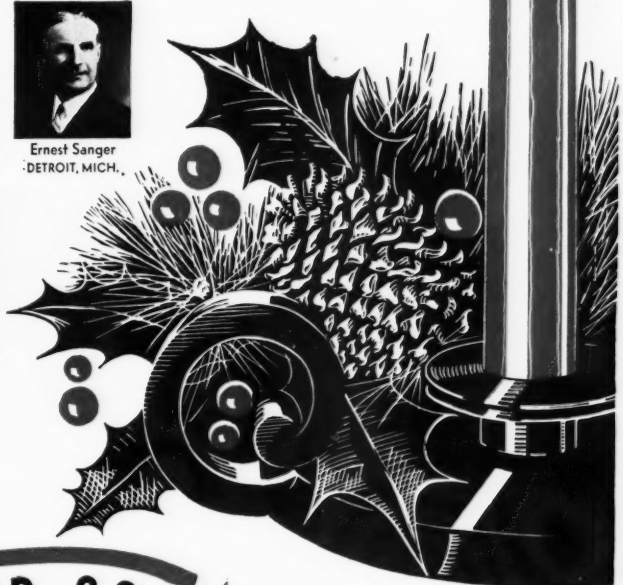

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LAWRENCE, MASS.

Only HOFFMAN VALVES

ARE NATIONALLY ADVERTISED!

To Millions of Home Owners and Modernizers through the SATURDAY EVENING POST BETTER HOMES & GARDENS AMERICAN HOME

NEW COMFORT from OLD RADIATORS

Vacuumized radiators deliver more heat on less fuel

It's an easy matter to cut steam heating costs by as much as 30% . . . and at the same time make a great improvement in comfort. Just change your present radiator valves to Hoffman Vacuum Valves.

Vacuumized radiators heat *quicker*—no chilly mornings. They hold heat *longer*, without frequent attention to the fire. They can be "balanced," so that heating is uniform all over the house.

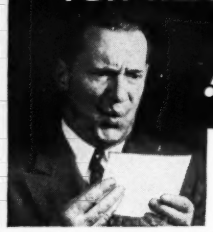
And—Hoffman Valves have the "short tongue" siphon which permits correct installation in both old-style and modern radiators.

"FUEL SAVINGS HELPED ME GET A NEW FUR COAT"

Send for free booklet explaining why Hoffman Vacuum Valves bring greater comfort for much less fuel. Hoffman Specialty Co., Inc., Dept. 000, Waterbury, Conn.

HOFFMAN VACUUM VALVES
MORE HEAT FROM LESS FUEL

PAYING TOO MUCH FOR HEAT?



THEN MODERNIZE WITH IMPROVED HOFFMAN VACUUM VALVES

Owners of steam heating systems marvel at the economies made by Hoffman Vacuum Valves. Savings up to 30% in fuel are common when radiators are vacuumized with these money-savers.

Hoffman Vacuum Valves add greatly to your c fort, too. Vacuumizing your heating system ma radiators heat *quicker* — no waiting for morning h They hold heat *longer* — far into the night. And "balancing" feature of Hoffman Valves assures form heating throughout the house.

Only Hoffman Valves have the "short-tongue" siphon which per easy installation in modern sler tube radiators as well as older ty

Send for Free Booklet

Tells the whole story of Hof Vacuum Valve economy and cor Hoffman Specialty Co., Inc., SE-10, Waterbury, Conn.

HOFFMAN VACUUM VALVES
MORE HEAT FROM LESS FUEL

Make your Radiators PAY A DIVIDEND

In Heat... In Comfort ...and in Money!

Save as much as one shovelful in three

You'll be delighted to discover how much you can save by equipping your steam radiators with Hoffman Vacuum Valves. And how much more comfort you'll enjoy after your heating system is *vacuumized!*

Hoffmanized radiators heat *quicker*—no chilly mornings. They hold *heat* longer, too, without frequently raising steam pressure. If you've had trouble in heating certain rooms, the "balancing" feature of Hoffman Valves will cure *that!* And they are the only valves with the "short-tongue" siphon which permits easy installation in both old-style and new slender-tube radiators.

Send for Free Booklet

Explains fully why Hoffman Vacuum Valves accomplish such amazing results. Hoffman Specialty Co., Inc., Dept. SE-9, Waterbury, Conn.

HOFFMAN VACUUM VALVES
MORE HEAT FROM LESS FUEL

BACKED UP BY A COMPLETE *Free* PERSONALIZED SALES PLAN TO SELL YOUR OWN PROSPECTS

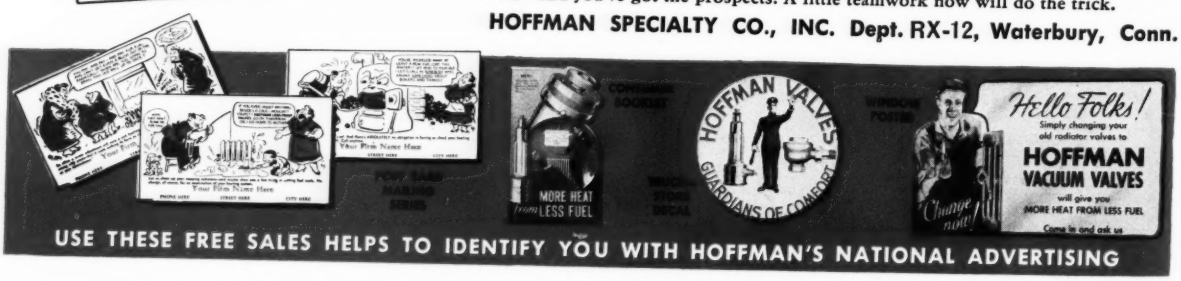
Business is catching—just like the measles! But in both cases, you've got to expose yourself! Hoffman here offers you a first class opportunity to put yourself in close contact with a good case of venting valve business.

It's no news to tell you that radiators by the thousand are due to be perked up with new valves this fall. The thing you'd like to know is how to get this business!

The answer is pretty obvious—it's going to the man who lets the wide world know he has valves for sale. Especially Hoffman Valves, known favorably the country over because of years of national advertising, backed up by outstanding performance.

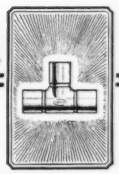
So why not climb on the Hoffman Bandwagon today! We've got the valves—the best ever—and you've got the prospects. A little teamwork now will do the trick.

HOFFMAN SPECIALTY CO., INC. Dept. RX-12, Waterbury, Conn.


Your Firm Name Here
Your Firm Name Here
MORE HEAT FROM LESS FUEL
HOFFMAN VALVES
GUARDIANS OF COMFORT
Hello Folks!
Simply changing your old radiator valves to
HOFFMAN VACUUM VALVES
will give you MORE HEAT FROM LESS FUEL
Change now!

USE THESE FREE SALES HELPS TO IDENTIFY YOU WITH HOFFMAN'S NATIONAL ADVERTISING

NORTHERN INDIANA BRASS CO.



ROSS MARTIN, *President*

BRONZE VALVES NIBCO COPPER FITTINGS

TRADE MARK REG. U.S. PAT. OFF.

ELKHART, INDIANA.

October 15, 1940

"Business as Usual?"

1. Yes and No! In the building trades, and for the metal working industry, there is plenty of work. This factory is busy. But it is with the normal products – and in the services of the usual run of customers.

2. That is the Usual Incident. But there is another phase of business unfolding. It has already involved many plant operations. It has to do with contracts being placed by the National Defense Commission. Details of such contracts will finally come filtering down to small plants like this one.

3. With Some it is Already True. Reports are current of vast production expansion. As much as 50% of plant capacity in some cases. And with others of the complete stoppage of product development and improvement. There is a great piece of work at hand which must involve the effort of all who can contribute to it.

4. Adaptability is the Law of Life. The test of every factory organization is its ability to continue with normal products and customers – and yet match this demand for added extraordinary effort. We of NIBCO pledge ourselves to meet this test. We pledge to continue with the valves and fittings manufactured here and so well known to the building trades, and to take in our stride any additional work we may be called upon to perform in this great national effort.

Ross Martin

Ross Martin:lr President.

RANGE OF ADJUSTMENT IS A MIGHTY IMPORTANT AIR VALVE CHARACTERISTIC

When you put adjustable air valves on a one pipe job to balance it, you do it because all radiators won't heat up at the same time. And there are three distinct things that prevent those radiators from getting steam all at once—their distance away from the boiler, sizes of the pipe used and the steam pressure. The total effect of these three conditions is different for each radiator.

From this you can see that to do a real job of balancing you have got to use an air valve that gives you a selection of many different venting capacities. It's got to vent very fast when wide open so that the far away radiators will get hot and it also must be adjustable way down to the absolute minimum so you can choke off the radiators near the boiler. Then there must be an infinite number of settings in between these two points to take care of the rest of the radiators.

The Arco-Detroit No. 300 Multiport has by far the greatest spread between its maximum and minimum venting capacities of any valve on the market. This has been determined by laboratory tests. Furthermore, it is impossible to adjust the Multiport so that it is shut off completely. The "controlled minimum" venting rate is always the same on every valve.

So—on your next job—use No. 300 Multiports and see for yourself how much better you can make a one pipe job perform with fast-venting valves that really have a wide range of adjustment.

Distributed nationally by American Radiator & Standard Sanitary Corporation and carried in stock by leading plumbing and heating wholesalers.

The No. 300 Multiport has an adjustment swing of almost 360° making it possible to select a venting rate that exactly suits the requirements of each radiator.

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Canadian Representatives: Railway & Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

The IDEAL FAST-VENTING SYSTEM

is composed of Arco-Detroit No. 300 Multiports for radiators and Arco-Detroit No. 861 Hurivent for mains.

NATIONAL *favored in Manhattan's Skyline*

Newest change in Manhattan's skyline is Castle Village, group of five giant apartment buildings overlooking the Hudson River, seen here from the George Washington Bridge. Throughout this project, NATIONAL *Pipe was used in all heating, drainage, gas and fire lines. Architect: George F. Pelham, Jr.; Consulting Engineers: Daniel & Wallen; Heating Contractor: J. H. Bodinger Co., Inc; Plumbing Contractor: Frank B. Lassette, Inc.*

Castle Village uses tons of NATIONAL PIPE

LESS than a year after the original ground-breaking ceremonies, Castle Village, Manhattan's newest and most unique housing project, stands complete.

Castle Village's immediate popularity comes as no great surprise, for its builders overlooked no opportunity to live up to their standard: "A design for better living." Only the finest available materials were approved for use in this project. That's why, among other quality products employed here, you will find that the major tonnage of pipe is NATIONAL Steel Pipe.

Here again, as in other leading commercial, residential and public buildings, NATIONAL Pipe proves that it offers builders and owners the safest, surest, long-term investment.

For the majority of building purposes, steel pipe is the best buy, and NATIONAL Steel Pipe is first choice.

Fifty years ago, steel pipe was standard. Today, after half a century of service with plumbing and heating contractors, builders and architects, steel pipe is still the industry's standard—the world's largest-selling pipe.

NATIONAL Steel Pipe is uniform and ductile, easy to bend or coil, readily installed. It easily takes sharp, accurate threads. It is clean, free of scale, and has a smooth surface for paints or decorative coatings. Use it for all standard piping applications.

NATIONAL TUBE COMPANY

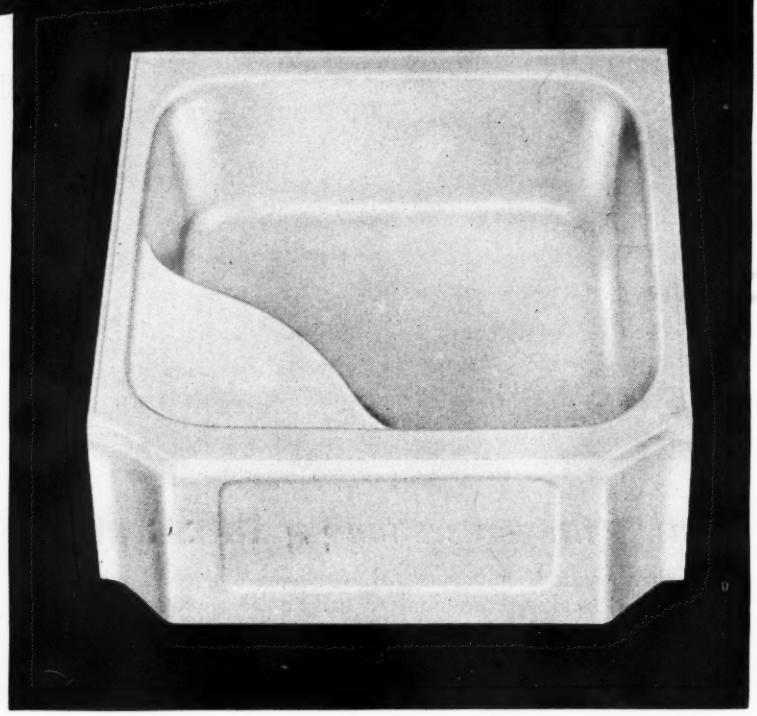
PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Export Company, New York

UNITED STATES STEEL

JUST THE THING FOR THE MASTER BATH

New Kohler "TIMES SQUARE" SHOWERING BATH



HERE'S WHY!

1 SAFE *for shower bathers.* More standing space—extra wide, flat bottom—low 16-inch side to step over.

2 EASY *for foot bathers.* Big corner seat for soaking, showering, sponging the children—5-inch-wide rim at front.

3 CONVENIENT *for tub bathers.* Big inside space equal to 5½-foot model, for submerging—gentle back rest.

THE "TIMES SQUARE" appeals to those who wish something distinctive. Bath fits neatly into a 4 x 4-foot recess, saves wall space and floor space. In one piece, of rigid cast iron, with Kohler's famous *super-luster* enamel. White and soft pastels. Combines with other Kohler fixtures to make smart matched sets.

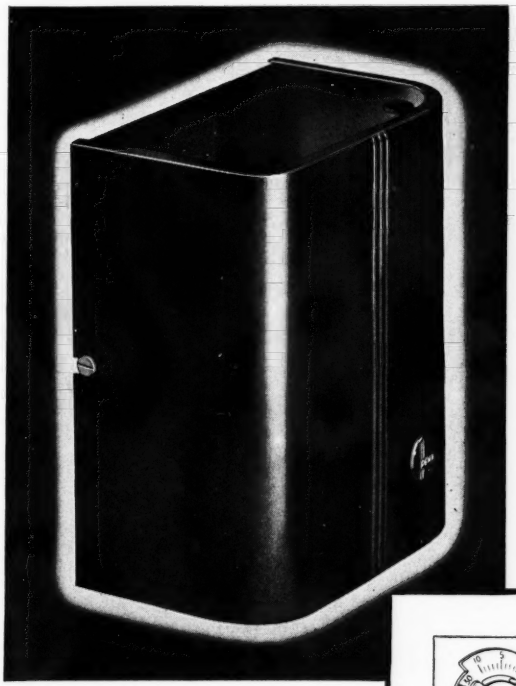
Write today for the latest news on fine fixtures and fittings—all priced for *extra* value. . . . Kohler Co. *Founded* 1873. Kohler, Wisconsin.

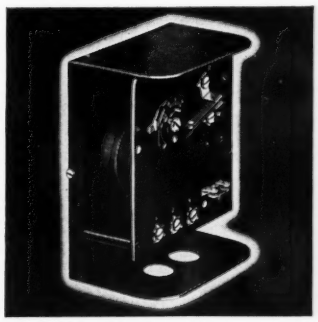
KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

NATIONAL DEFENSE CANNOT WAIT

New Penn Stoker Controls Offer Proved Electric Timer Dependability

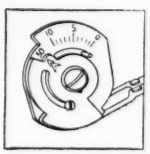




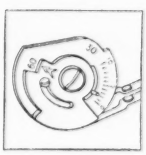
Penn 570 Series Stoker Timers are housed in a modern design steel case, with slip-on, clamp-fit cover. Completely accessible for wiring and adjustments with cover removed, as shown in two views above. Available in two models—Type 570 (left, above) which incorporates transformer for low voltage thermostat circuit, for use with Penn heat anticipating thermostat...Type 570H (right, above) for line voltage operating control circuit. (See typical circuits below.) Both models incorporate adjustable hold-fire frequency and duration.

Low Speed Synchronous Motor Has Unequalled Performance Record in Penn Stoker Timers

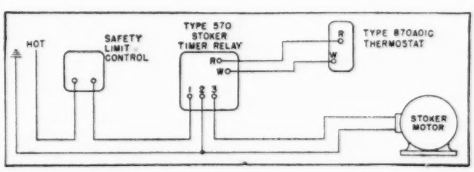
Dependable performance has dictated the use of the same basic low speed synchronous motor in Penn's new 570 Series Stoker Controls, further simplified and with all operating parts permanently lubricated and sealed against dust, moisture and corrosion. This timer provides positive firing frequency and duration as set, regardless of normal variations in voltage or wide variations in ambient temperature. Operates at low temperature, further contributing to long operating life. **Penn Electric Switch Co., Goshen, Indiana. In Canada: Powerlite Devices, Ltd., Penn Electric Switch Division, Toronto, Ont. Branches, representatives and distributors in all principal cities.**



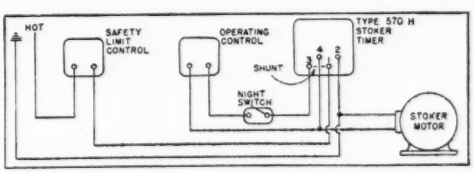
Timer cams are high dielectric bakelite, operating timer-actuated contact leaves directly. Illustrated at left is cam set for firing interval of once each 30 minutes, as indicated by figure "30" with accompanying pointer. Loosening of cam holding screw in center of cam assembly permits adjustment of hold-fire operation from 0 to 10 minutes, as indicated by calibrations near rim of cam assembly. Loosening of oval-head screw in slotted portion of cam assembly permits cam to be set for firing interval of once each 60 minutes, as indicated by figure "60" with accompanying pointer in illustration at right.



Type 570 Stoker Timer Relay, incorporating low voltage transformer and relay, is recommended for comfort heating applications, where stoker is to be controlled directly by thermostat. Permits use of Penn's heat anticipating room thermostat. Typical application is shown at right.



Type 570H Stoker Timer, designed for line voltage operating control, is recommended for industrial applications and for forced circulation hot water systems where operating control maintains boiler pressure or temperature. Typical circuit at right shows use of operating control which may be cut out of circuit for hold-fire operation only during stand-by periods. An economical installation.



More information on what Penn Controls will do for you—One of a Series.

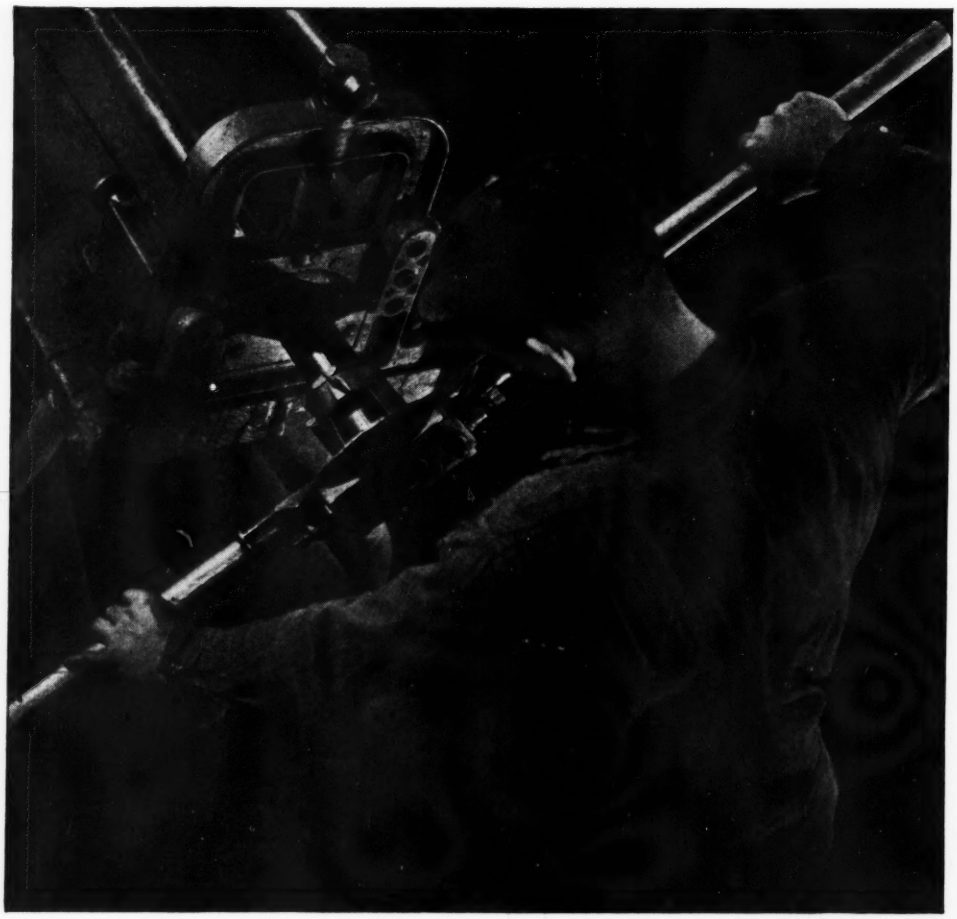
★

Penn-Built Controls for Many Applications

Thermostats, Bonnet Controls, Ductstats, Fire Protection Controls, Water Temperature Controls, Boiler Pressure Controls, Boiler Water Level Controls, Humidistats, Stack Switches, Stoker Timer Relays, Solenoid Gas Valves, General Purpose Relays, Solenoid Refrigerant and Water Valves, Refrigeration Pressure and Temperature Controls, Water Valves, Pump Controls, Air Compressor Controls, Air Volume Controls, Line Starters.

PENN

Find out for yourself



Thread it, bend it, weld it—find out for yourself how *easy* Bethlehem Pipe is to work with on the job. You save time—yet installations are more durable with Bethlehem Pipe. And Bethlehem Pipe's faster installations and better jobs mean more profits to you.

Phone your Bethlehem Pipe distributor for prompt delivery on your next job. In all standard sizes up to 3 inches, he can now supply you with uniform 21-foot lengths (plus or minus 1 inch) of BETH-CO-WELD, Bethlehem's new Continuous-Weld Pipe.

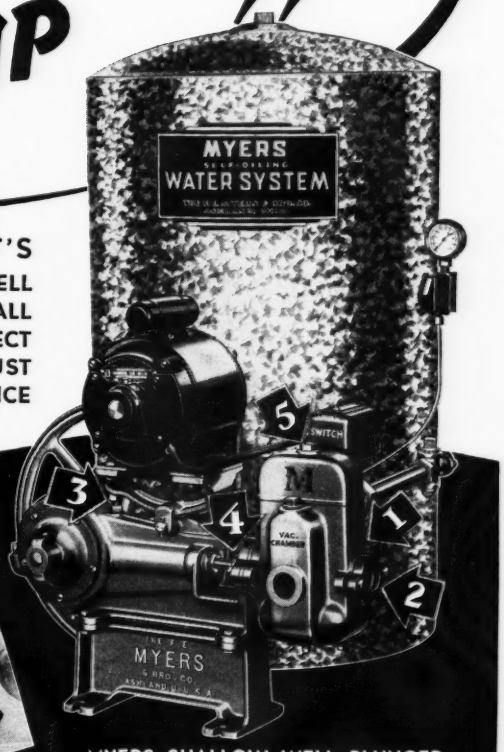
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

HERE'S A PUMP MAN'S PUMP

BECAUSE IT'S

- --EASIER TO SELL
- EASIER TO INSTALL
- EASIER TO INSPECT
- EASIER TO ADJUST
- EASIER TO SERVICE



MYERS SHALLOW WELL PLUNGER TYPE WATER SYSTEM

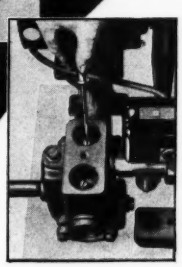
DOUBLE CHECK THESE ACCESSIBILITY FEATURES

1. Suction Valves under separate caps—Bolt cap construction for accessibility.

2. Plunger assembly easily removed and replaced as a unit with screw driver.

3. Hinged motor base permits adjusting V-Belt tension quickly and easily.

4. Extra large packing gland—easy to adjust and repack.



5. Removal of one bolt exposes discharge valves.

Take Off Your Hat To The MYERS
PUMPS WATER SYSTEMS HAY TOOLS DOOR HANGERS

Pump men are becoming more critical about the Water Systems they sell. They have learned that their profits depend upon the ability of the Pump to stay on the job and render satisfactory performance to their owners. Particularly, they demand accessibility and freedom from frequent or expensive service.

Myers engineers were thinking of the man who has the job of installation and servicing when they designed this Shallow Well Water System. No matter how many years it has been installed, our many installation and service features make every part quickly accessible with a monkey wrench and a screw driver.

Correctly designed... Precision built... and backed by Myers reputation for quality merchandise . . . you make a full margin of profit on every job; without waste of time and money in costly servicing and replacements. Get the whole story now. Write or wire.

THE F.E.MYERS & BRO.CO.
ASHLAND, OHIO, U.S.A.

YOU SHOULD HAVE A COPY

Here's a little book for the use of Myers Dealers and their employees in helping them to sell, install and service Myers Power Pumps and Water Systems. Any Myers representative can supply you with copies—or write us on your business stationery.

PUMPS — WATER SYSTEMS — SPRAYERS — HAY TOOLS — DOOR HANGERS

Thanks:

"I have enjoyed your magazine and have always received much good from it . . ."

G. L. Steele,
Burlington, N. C.

Between Ourselves

Ideas and Ideals . . . which make up . . . this issue

Defense Cooperation

To the Editor:

Your help in all this (national defense) work is very encouraging, and you may be sure that we greatly appreciate what you are doing.

W. H. Harrison, director,
Construction Section, The Advisory Commission to the Council of National Defense

● First job for Chairman George E. Hoffman and the Plumbing and Heating Manufacturers Committee was to work with Mr. Harrison and his department on barracks and cantonments for the vast new army. Part of the "help" which Mr. Harrison refers to was a preliminary survey of manufacturers' stocks and productive capacities carried on by the Marketing and Research Bureau of Domestic Engineering.—Ed.

● ● ●

Progress In Alabama

To the Editor:

Our association has held three important meetings recently—one in Mobile at the Cawthorne Hotel, one in Birmingham at the County Court House, and the third in the Chamber of Commerce Bldg. in Montgomery.

All three meetings proved very successful. All plumbing and heating dealers in Mobile except one and many in the surrounding territory joined the association. Birmingham wasn't quite as enthusiastic as Mobile; however, a number of Birmingham plumbing and heating dealers joined the association and promised to reorganize Birmingham and Jefferson County into the state and national associations.

The Alabama membership has more than doubled since the last convention and the officers have great hopes of doubling it again before the next convention, which will be held in May.

C. Lester Ray, Dothan,
President, Alabama State Assn. of Master Plumbers and Heating Dealers

● The promise of rejuvenated organization strength for the Alabama association was indicated at last year's annual convention. Mr. Ray, evidently, has applied to association-building the same energy which he devotes to his own business. (See feature articles, Domestic Engineering, May and June, this year)—Ed.

● ● ●

From Mr. Hoffman

To the Editor:

Thank you very much for the extra copy of DOMESTIC ENGINEERING which has just come to my desk.

I appreciate the fine publicity being given the activities of the Plumbing and Heating Manufacturers Committee through the editorial pages of your good paper.

George E. Hoffman, Chairman,
Plumbing and Heating Manufacturers Committee

● Mr. Hoffman's report as chairman of the committee named by our industry to work with the National Defense Advisory Committee on supplying plumbing and heating equipment for national defense projects was published in last month's issue. The committee's first job concerned the equipping of cantonment to house the enlarging U. S. Army. An article on Page 26 of this issue describes the plumbing and heating in one group of these cantonments, at Ft. Sheridan, Ill.—Ed.

● ● ●

Warning

The Quartermaster General's Office of the War Department has again warned contractors not to engage "agents" or "consultants" to assist them in getting national defense construction contracts. In a bulletin on this subject, the Quartermaster General's Office declares. "It is again emphasized that contractors, architects and engineers for the defense program have been and will continue to be selected solely on the basis of their experience and technical qualification for the particular project. So-called 'influence' or 'politics' has not and will not play any part in these selections."

The bulletin further states that the introduction of personal solicitation and personal influence as elements in the procurement of contracts with the Government is against public policy: "Any contract to pay a person on a contingent-fee basis, that is, a percentage on contracts obtained by such person for his employer from the United States, is contrary to public policy, and such contracts are void as between the contracting parties."

A provision in all defense construction, engineering and architectural contracts requires the contractor to warrant "that he has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage or contingent fee."

Before a cost-plus-a-fixed-fee contract is awarded by the Office, the proposed contractor is required to execute an affidavit incorporating the above points.

● ● ●

File Idea

To the Editor:

I find it necessary to clip my copy of DOMESTIC ENGINEERING quite extensively when it arrives—for filing of items by subject and to pass on some items or articles to others.

Consequently, when I go back to an issue for something in particular, that item has been clipped or destroyed by the clipping of another on the back of the page.

I should like to enter a subscription for a second copy, to be preserved as a library copy.

Please enter it to start with the July, 1940, issue so that I may have a complete file of the current Volume No. 156.

Z. H. Mischka,
Houston, Texas.

● ● ●

Speeches

To the Editor:

Once in a while a fellow is called upon to give some sort of a talk in connection with his line of business, and I

(Continued on Page 23)

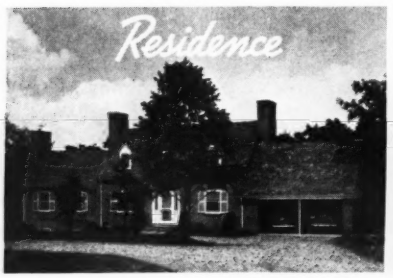
PENBERTHY INJECTOR COMPANY

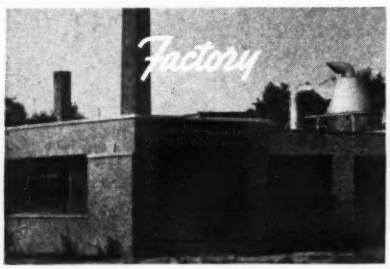
Manufacturers of Quality Products Since 1886

Canadian Plant: WINDSOR, ONTARIO **DETROIT, MICHIGAN**

LOWER INSTALLED COST! MORE COMFORT! FOR ANY BUILDING!

B&G *MONOFLO* SYSTEM





MORE PROFIT BECAUSE EASIER TO SELL!

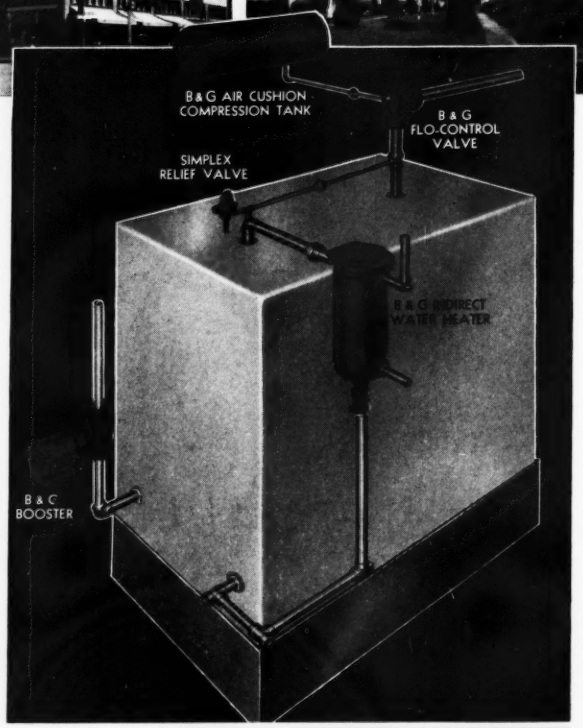
There certainly is a reason for the growing wave of enthusiasm for the B & G Monoflo System . . . and it comes under the head of "Better Heating for Less Money!" Better heating because this system furnishes not only adequate heat but is controllable with amazing accuracy. Less money to install and operate because it is a *single main, forced circulation hot water system!*

Virtually no size or height limitations—the Monoflo installation measured in thousands of square feet operates as efficiently as the one installed in a cottage. Extremely simple in equipment, therefore is inherently dependable. Made to order for zoning—with all that this modern practice means to greater economy and comfort. Designing for higher BTU heat emissions brings material savings in radiation.

In this system, you have not only all the outstanding advantages of Forced Circulation, *but equipment built to extract the utmost from it!*

LIMITLESS HOT WATER —ALL YEAR 'ROUND!

The same boiler that heats the house also heats the domestic water by means of a B&G Indirect Heater. Hot water is always on tap —winter and summer—at negligible cost.



B & G Monoflo System delivers solid comfort

B&G

BELL & GOSSETT CO.

3000 WALLACE ST., CHICAGO

Canadian Licensee: S. A. Armstrong, Ltd., 720 Bathurst St., Toronto

Between Ourselves . . .

(Continued from Page 20)

am wondering if DOMESTIC ENGINEERING has material to form the basis for a talk in the interests of our industry.

W. H. Franklin,
Merrimac, Mass.

● The Fiftieth Anniversary issue of Domestic Engineering (October, 1939) was prepared especially to present our industry to the public in its true light. Twenty feature articles in that issue take up, one by one, the most important problems affecting our industry's relationship with the public. All of these articles are ideally suited for radio talks, addresses, publicity articles, etc.

In a lighter vein, the Domestic Engineering pamphlet, "The Story of the Bath," is ideal for similar purposes.—Ed.

● ● ●

Unemployment

Washington, D. C., November 16.—That the national defense program is curing the evils of unemployment was the belief expressed by leading administration economists at a recent conference here. Representatives of business, banking and industry, as well as government economists, attended the conference.

The ball was carried for the national administration by Richard Gilbert, consultant of the Defense Commission, in a debate of six and one-half hours, in which he received support from Leon Henderson, member of the Securities and Exchange Commission and of the Defense Commission; Dr. Isador Lubin, a Defense Commission consultant and former chief of the Bureau of Labor Statistics; Lauchlin Currie, one of President Roosevelt's administrative assistants; Mordecai Ezekiel, economic advisor to the Secretary of Agriculture; and Rexford Tugwell, former member of the Roosevelt "brain trust" and now connected with the New York City Planning Commission.

Government representatives attending included Thurman Arnold, assistant attorney general heading the Anti-Trust Division, Department of Justice who inquired jokingly of Dr. Tugwell, "Do you mean that from an economic point of view it is a grand war?"

"Yes," answered Tugwell, "if we don't get into it." He said it would require from $12,000,000,000 to $15,000,000,000 of Government spending annually to wipe out unemployment instead of $2,000,000,000 or $3,000,000,000.

Gilbert predicted that when the defense crisis is over, it will not be practical to say that "Government investment and a high national debt are all right for defense, but not for providing security and decent living standards."

When Lee Pressman, counsel for the CIO, declared the Government was cushioning the risks of private industry by permitting five year amortization of defense plants and inquired whether the Government should not extend similar protection to workers by guarantee of security, Defense Commissioner Henderson responded, "I believe it is an obligation of society to answer 'Yes.'" Pressman insisted that labor should get a legislative guarantee or legal promise of security.

Gilbert predicted that the defense program would result in a 6,000,000 increase in employment by the spring of 1942, but Tugwell predicted that when the crisis ends, there will be considerable unemployment.

● ● ●

A. C. in Australia

To the Editor:

I have always found DOMESTIC ENGINEERING to be of use to me, especially in the air conditioning field—which is gaining ground in Australia at present. I have also profited from your books from time to time.

We are working long hours on contracts for the Government. . . .

J. Rance, Wembley Park,
Western Australia.

● ● ●

This Issue

On the national defense front, this issue contains—in addition to the latest general news of the program—four articles of exceptional interest. First is a description of the new plumbing and heating in a typical Army post, a project which gave jobs on a competitive-bid basis to three plumbing and heating contractors. Second is a call for bids for 13,000 each of plumbing and heating products to equip homes which fall under the classification of "defense housing." Third is a list of national defense housing jobs on which contracts are to be awarded. Fourth is a report of a meeting in Washington which defined the position of wholesalers in the general scheme.

Among the other material in this issue, we heartily commend the simplified bookkeeping article entitled, "How to Control Expenses . . . And Increase Profits."—Ed.

Sergt. Charles E. Robbins and family move into the first home in the first USHA defense housing project (Montgomery, Ala.). This issue contains specifications for the plumbing and heating equipment for such houses, a call for bids on this equipment, and a list of the projects for which contracts have not yet been awarded

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Our Industry

December, 1940

Now, More Than Ever . . .

WHEN, early last summer, the alarms from Europe's war carried across the ocean and forced America to take steps for self-defense, few if any, were able to foresee the many and varied influences of the preparedness movement upon the plumbing and heating industry.

Many of these influences are now apparent, but others are just coming into limited view. After a brief review of the early and most evident effects of the national defense movement upon our industry, this editorial will analyze one of the newest—and most important—influences. This influence promises a continued growth in that part of our industry's activities which touch upon American industry.

As recently as last July, conscription of man power was not considered, generally speaking, as an imminent practicality. But there *was* a cry for production—production of guns, bullets, airplanes in unprecedented quantities. From this point, it took only a single step to reach the realization that defense involves more commodities than munitions; requires, in fact, greater production of almost everything. Therefore, more factories. Therefore, more industrial work for plumbing, heating and air conditioning contractors. Therefore, more homes for housing the workers in those factories. Therefore, more residential work for plumbing, heating and air conditioning contractors.

If industrial and residential construction is necessary to national defense, the services of our industry obviously are indispensable. This plain fact, plus a general understanding of a second fact that high living and sanitation standards are vital to efficient production, brought the first great rallying of our industry to the national defense cause. An increasingly apt slogan became: "Industry and Homes . . . America's First Line of Defense. Heating, Plumbing and Air Conditioning . . . Vital to American Industry."

Later, when a vast new army was called for, and it became evident that the men would require housing, the Federal Government found our industry an eager listener and a ready cooperator. How well our industry's committee, which was formed to aid the nation in this housing problem, is functioning can be judged by the results being achieved. A letter on this general topic, from W. H. Harrison, head of the Construction section of the National Defense Advisory Commission, will be found elsewhere in this issue.

Earnest cooperation by our industry with the Federal Government has filled this first and most urgent demand on its resources. The second demand is to supply plumbing and heating for vast new housing (individual units) needed for the families of Army personnel and for industrial workers. This month's front cover introduces this part of the program to our industry, and articles in this issue list the jobs to be opened and the specifications of the equipment to be installed. Government leaders emphasize how indispensable our industry is to national defense.

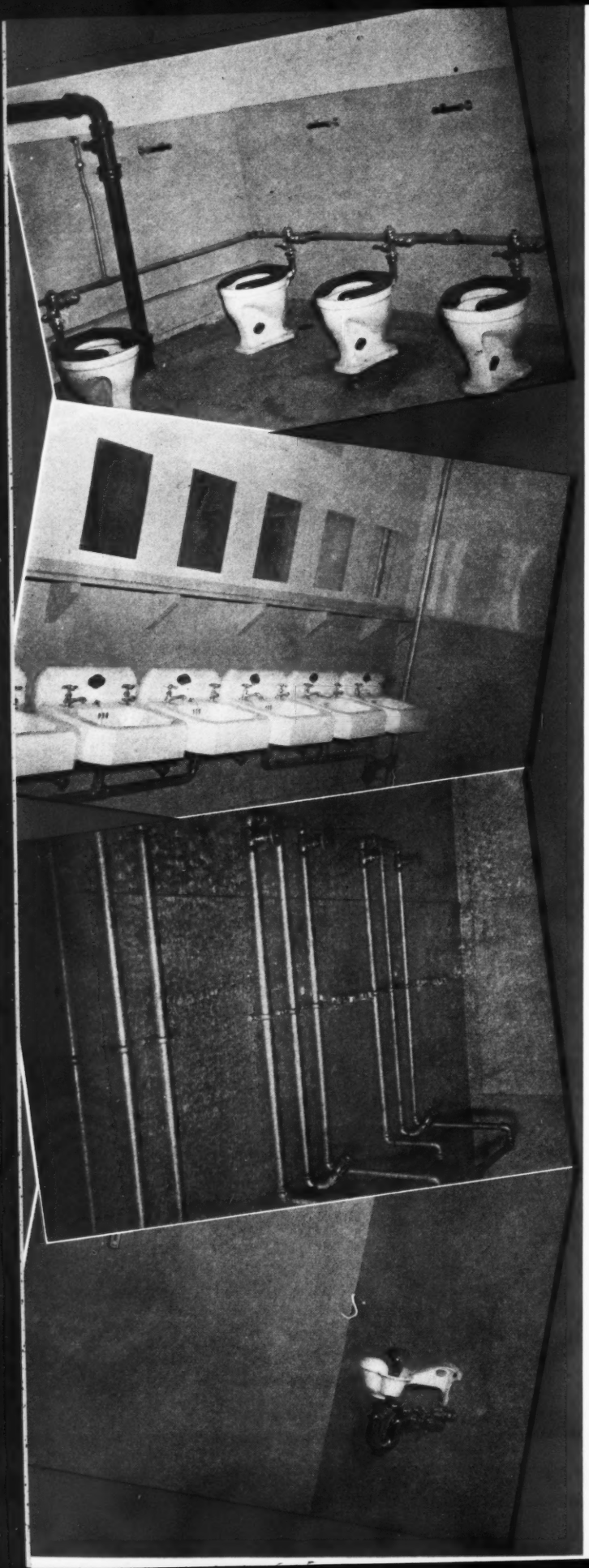
Because of the fact that the major part of the national defense housing program is preliminary to actual defense activities it is pertinent to ask: "After the emergency, what?" A search for the answer to this question brings us face to face with the newest influence of national defense upon our industry . . . which answer has been verified by field surveys of DOMESTIC ENGINEERING editors. On the industrial side, the following is found:

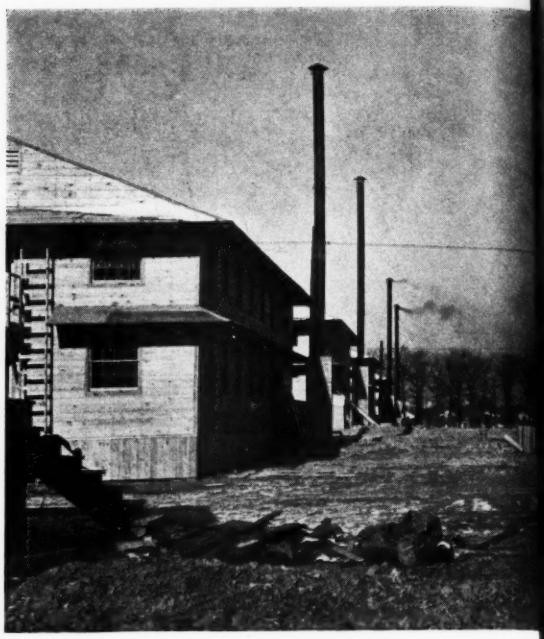
Industry, which in the last few months has called upon the contractors in our industry to help in the creation of *new* factories and plants, now is calling upon these contractors for the *maintenance* of its plumbing, heating and air conditioning. Factory owners and managers universally are coming to realize their original functions. If a new wash fountain is to be installed, if a pipe line is to be re-located, contractors are being engaged to do the work.

Demands for additional skilled workmen by plumbing, heating and air conditioning contractors . . . the reduction of maintenance crews formerly employed by factories and plants . . . and increased production demands upon the factories themseles, have sped this situation. The significant point is, however, that industry again is discovering it pays to have its work done by experts. In the words of one plant manager: "The job is done more quickly, more neatly and more economically by a qualified contractor."

Thus, more than ever, the qualified plumbing, heating and air conditioning contractor is finding new opportunities for his services, new responsibilities under the national defense program. Thus he is growing as the key factor, not only in industrial construction, but also in the maintenance of industrial plumbing, heating and air conditioning. This development is more than a trend. It is a fast-growing actuality which will gather even more momentum as the national defense program progresses.

Contractor Is Key Factor





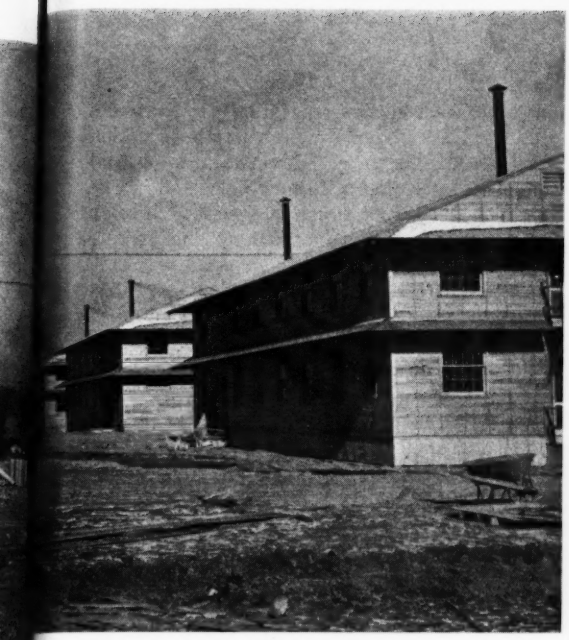
1 Army Job, 3 P&H Contractors

"THE FIRST JOB," our industry was told only a few weeks ago, "is the construction of cantonments to house the vast conscript army." The first job of the Plumbing and Heating Manufacturers Committee, formed to cooperate with the National Defense Advisory Commission, was to organize sources of supply for the plumbing and heating needs of these cantonments.

Construction of many of the new barracks was going forward, of course, even before the Government's total needs could hope to be known. Thus it is that hundreds of the new barracks, located in many sections of the country, have already been completed. Hundreds more

Here's Plumbing at ← Fort Sheridan

At left, top to bottom, photographs showing the plumbing in a 63-man barracks building at Ft. Sheridan: Some of the water closets in the single wash and toilet room; lavatories in the same chamber; shower room opening off the washroom; drinking fountain located at one end of the dormitory. Photograph at center above shows one of the avenues of new structures



Fort Sheridan Reception Center illustrates our industry's work in national defense program. These jobs were awarded on the competitive bidding principle

are under construction and greater numbers are merely in the blue-print stage.

The photographs on these two pages take the contractor on a tour of the new barracks and associated buildings at one Army post—Fort Sheridan, north of Chicago. Twenty new barracks are being built at this post for the temporary housing of men before they are assigned to permanent quarters at various camps. This development, including also such structures as a theater, a warehouse, a messhall, an infirmary, etc., to make a total of 29 buildings, comprises what is called the "Reception Center." Men at the rate of 100 per day are drawn here from Illinois, Michigan and Wisconsin to

Here's Heating at Fort Sheridan →

At right, top to bottom: One high pressure and one low pressure boiler used to heat and furnish steam for the messhall; radiator of the type used in the smaller rooms of the messhall (unit heaters are used in the main room); winter air conditioning unit of a type widely used for heating cantonments at Ft. Sheridan and other army posts; duct work in the large warehouse

Here's One Contractor Who Did Some of the Work at Fort Sheridan

receive their first orientation in the Army and then to be distributed to the various locations.

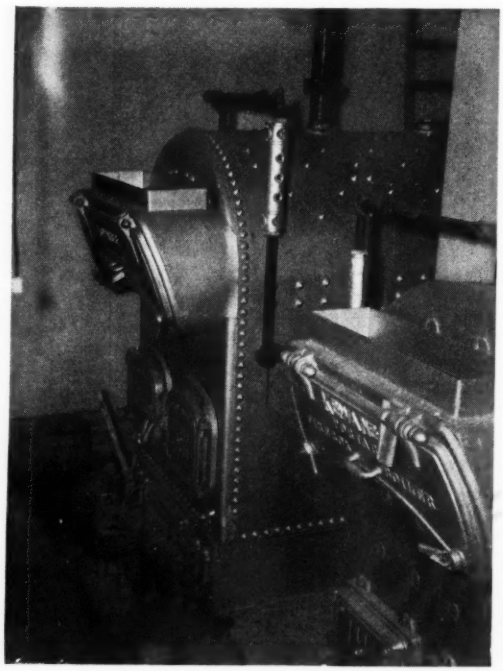
Each of the twenty two-story barracks houses 63 men. When your reporter visited the scene on Saturday, November 16, two of the cantonments had just been finished to take care of the 100 men scheduled to arrive on the succeeding Monday. The other buildings were in various stages of construction, completion being scheduled to keep shortly ahead of the 100 man-per-day inflow. All buildings are finished and furnished within 90 days after construction starts.

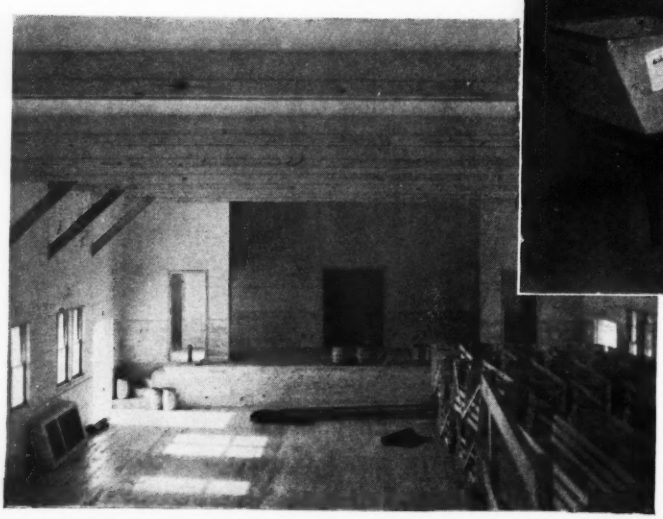
The buildings are constructed of unpainted pine, covering diagonal sheating, felt and insulated plaster board. The barracks are heated by forced warm air, with the heated and filtered air supplied to both floors by two traveller ducts—one for each story—having a total run of 50 ft. each. Two opposed outlets are taken off the main with short elbows separating the main and the register faces; grilles have directional vanes shooting the air towards floor level every ten feet to make a total of twelve outlets on each floor. Return is located in one end of the building, the air for re-heating passing through large-size grilles and a short duct run to the heating plant.

The large messhall (capacity 1,000 men at one time) is heated largely by twenty unit heaters fed by a coal-burning low-pressure boiler, having a capacity sufficient for 7,000 square feet of radiation. Steam radiators are used to heat the smaller rooms opening from the main

(Continued on Page 90)

Left: Chas. A. Schiemann, heating contractor on the job. Right: another view of boilers he installed





Left: Theater for entertainment of new recruits at Ft. Sheridan. Above: view of lavatory and slop sink in barracks washroom (photo taken in direction opposite to picture on page 26)

What the Govt. Wants . .

Procurement Division asks bids for 13,000 each of many plumbing and heating products for national defense housing. Here are complete specifications

PRELIMINARY negotiations have been initiated by the Procurement Division of the U. S. Treasury Department for mass purchases of plumbing, heating and household equipment under the national defense housing program, Director Clifton E. Mack has announced.

Negotiations were begun by request of the Federal Works Agency. The agency, which is directing construction of defense housing projects expected to total nearly $200,000,000, requested the Procurement Division to take necessary steps toward the purchase of the equipment up to the point of contract awards.

Fixtures on which the Procurement Division has been asked to solicit quotations include: bath tubs, refrigerators, combination kitchen sinks and trays, cooking stoves, lavatories, medicine cabinets, water heaters, space heaters, furnaces, range boilers, broom, wall and base cabinets, and brass fittings. Other items are to be added by the Federal Works Agency to those now listed for purchase. According to present estimates, quantities of approximately 25,000 will be required for each item although revisions may be made as construction goes forward.

Letters with specifications have been sent to manufacturers throughout the country inviting price quotations on each item in lots of 1,000. In submitting quotations manufacturers were asked to supply the following data: maximum monthly production; proportion of production which can be delivered to the Government; date production can be started and the number of items which can be stored in their establishments and in their cities.

To speed purchasing plans, November 18 was set by the Procurement Division as the deadline for the submission of price schedules and other pertinent information. There will be no public opening of quotations. Replies will be reviewed by the Federal Works Agency with particular attention devoted to the following factors: prices quoted; monthly production, and monthly delivery capacity. If in line with estimates, authority will be given the Procurement Division to contract for the account of the agency.

It is contemplated that the initial purchases of household equipment will

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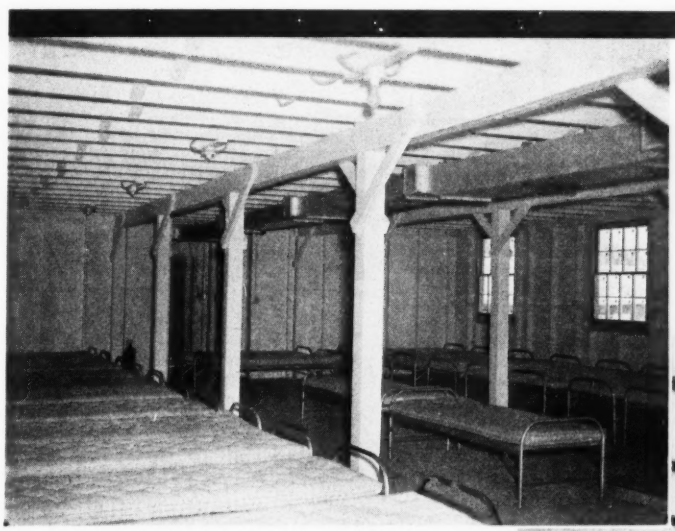
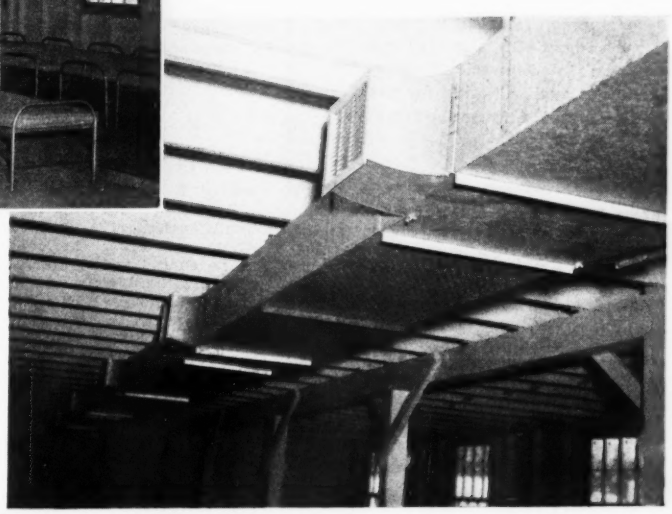


← Ft. Sheridan

Above: Photo of one floor of one of the barracks at Ft. Sheridan. There are twenty of these buildings in the Reception Center alone. More than a hundred additional cantonments will be constructed before the complete building program is finished



Below: Close-up of the first floor traveler duct of the cantonment shown at left. The ducts in both floors, and in all of the barracks, are identical. Each duct has a total run of 60 ft.; two opposed outlets are taken off the main every ten feet to make a total of twelve on each floor. The return is located at the south end of the building (foreground), returning air to the heating plant through a short duct run

Specifications of the Plumbing and Heating Equipment for Defense Housing Released by Procurement Division

be for a minimum of 13,000 dwellings. Construction of these units has been authorized by the War Department. The Army dwellings are to be the first of a projected program to house those engaged in national defense activities.

To coordinate delivery of equipment with construction progress, manufacturers will be furnished with instructions advising them when and where to ship.

Specifications of representative items follow:

No information was available, a few months ago, on the quantities of plumbing and heating equipment which would be needed for the national defense program. In an effort to assist both the Government and our industry, Domestic Engineering, through its Marketing and Research Bureau, conducted a preliminary survey of manufacturers' stocks and their capacities to produce needed products. This survey indicated that greatest efficiency could only result through a specific listing of total quantities of the particular items needed. The information in these columns, released by the Procurement Division for publication in Domestic Engineering, gives such a listing for the first group of defense housing projects.—Ed.

SPECIFICATIONS FOR BATHTUBS, CAST IRON

Single front, recessed type, 5′ tub, for left and right hand outlet, to be of one piece high grade cast iron enameled on inside of tub and over the rims; the enameled surface to be coated with porcelain enamel applied by the dry process and thoroughly fused to the cast iron base; quality to conform with the standards set forth in Bulletin CS 77-40 of the National Bureau of Standards, U. S. Department of Commerce, dated May 25, 1940, entitled "Sanitary Cast-Iron Enameled Ware."

SPECIFICATIONS FOR BRASS FITTINGS FOR BATHTUB

Fittings shall be of the concealed body combination type with over-rim spout. Valves shall be by-passed pattern with plugged ½″ I.P.S. opening, and ½″ I.P.S. metal-to-metal union inlet connection on 6″ centers. Valves to be reversible for supplies from above or below with ½″ I.P.S. outlet tappings on top and bottom of valve body with renewable seats and 4-arm brass handles. Valve stems to be equipped with swiveled discs, spouts to be heavy cast brass, tapped for hose connection. Bonnets to be removable from front of wall, to be covered with bell type brass escutcheons with adjustable threaded holders. Valve stems, escutcheons, escutcheon holders, handles and spouts to be polished chromium plated.

Cast parts to be made from red brass. Other brass parts to be made from standard commercial brass rod, excepting the escutcheons, to be made from standard commercial sheet brass, or

External (wall mounted) fixtures for ½″ iron pipe size on 6″ center with same construction and specifications as above are acceptable.

While the Procurement Division of the Treasury Department, purchasing agent for the defense housing program, now asks for total bids for 13,000 each of the items here listed, the first stage of the program contemplates early purchase of 25,000 of each piece of equipment. Bids are called for, according to the specifications in this article, in lots of 1,000.

SPECIFICATIONS FOR BATHTUB, CAST IRON

Recess apron 5′ tub, for left and right hand outlet, to be of one piece high grade cast iron; the enameled surface to be coated with porcelain enamel applied by the dry process and thoroughly fused to the cast iron base; quality to conform with the standards set forth in Bulletin C S 77-40 of the National Bureau of Standards, U. S. Department of Commerce, dated May 25, 1940, entitled "Sanitary Cast-Iron Enameled Ware."

SPECIFICATIONS FOR BRASS FITTINGS FOR LAVATORY

Lavatory double faucet fitting shall be of the double type for two hole or three hole lavatories, drilled for valves 4″ on centers. Valve bodies to be cast brass with renewable seats and with integral ½″ I.P.S. inlet shank with union tailpieces on 4″ centers, equipped with rubber washer, metal friction washer and jam nuts. Valve bodies to be polished or covered with brass escutcheons. Spouts to be raised pattern, extending approximately 3¾″ beyond center of valve with 1⅜″ air gap with chain stay cast on under-side, equipped with ring for stopper chain. Valve stem to be of quick compression pattern to have indexed brass lever handles — handles, stems, packing nuts, spouts and exposed valve bodies or valve escutcheons to be polished chromium plated.

Cast parts to be made from red brass. Other brass parts will be made from standard commercial brass rod, excepting escutcheons, to be made from standard commercial sheet brass.

The relationship of plumbing, heating and air conditioning to national defense is our industry's responsibility and opportunity

SPECIFICATIONS FOR BATHTUB, STEEL

Recess apron 5′ tub for left and right hand outlet, to be made of not less than 14 gauge steel, apron to be not less than 16 gauge, continuous welded, and to be coated with porcelain enamel applied by the wet process and thoroughly fused to the steel base.

SPECIFICATION FOR WOOD CLOSET SEATS—CLOSED FRONT WITH COVER

Wood seats and covers shall be of high grade, thoroughly seasoned straight-grained hardwood free from knots, checks, worm holes and other injurious defects, and shall be finished smooth. Seats shall be reinforced with steel or wood dowels, the total length of which shall be not less than 12″, one dowel across back of seat, one dowel across front of seat. Minimum diameter of dowels shall be ¼″ for steel, ⅜″ for wood. Hinges shall be made of cast brass, chromium plated bar type leaf pattern. Seat posts on 5½″ centers. Each leaf shall be attached to seat and cover by not less than 2 wood screws of ⅝″ minimum length. Minimum thickness of finished seat 1″; of cover ¾″. Seats and covers to have not less than 2 coats of clear varnish or lacquer over suitable stain or filler; color shall be mahogany.

Defense housing does not include Army barracks. Defense housing consists of residences for families of Army personnel, and for factory workers. Not represented, is the stimulated private demand for plumbing and heating equipment to raise living standards to highest possible production and defense standards.—Ed.

Each hinge post shall be provided with one steel and two rubber washers. Studs shall extend not less than two inches below flange on post and shall be threaded to within ¾" of flange with standard ⅜" thread. Stud nuts to be of brass not more than 1" in diameter. Hinges exclusive of nuts and washers shall weigh not less than 14 ounces. Each seat shall be properly packed in a paper carton.

SPECIFICATIONS FOR LAVATORY, CAST IRON

Lavatory, not less than 19"x17" with integral back, to be of one piece high grade cast iron; the enameled surface to be coated with porcelain enamel applied by the dry process and thoroughly fused to the cast iron base; quality to conform with the standards set forth in Bulletins CS 77-40 of the National Bureau of Standards, U. S. Department of Commerce, dated May 25, 1940, covering Sanitary Cast Iron Enameled Ware and furnished with concealed wall hangers.

SPECIFICATIONS FOR WATER HEATERS, AUTOMATIC STORAGE TYPE, ELECTRIC

This specification covers automatic storage-type electric water heaters in tank capacities of approximately 10, 20, 30, 40, 50, 60, and 80 gallons.

The hot water storage tanks shall have a minimum side wall thickness of 12 gauge, the heads and bottoms shall be of sufficient gauge metal to withstand a hydrostatic test pressure of 250 lbs. All tanks shall be of the hot dipped galvanized type. Electric water heaters shall be equipped with a minimum thickness of 2½" of approved insulation. Electric water heaters shall be equipped with a built-in heat trap on the hot water supply line. All cold water inlet lines shall be equipped with defuses or baffles.

Electric water heaters shall be equipped with thermostats and heating elements approved by the Underwriters' Laboratories. Electric water heaters shall be approved by the Underwriters' Laboratories. Electric water heaters shall be furnished in steel jackets with baked enamel exterior.

Electric water heaters shall be guaranteed for a minimum of two years. Water heaters shall be properly crated and packed for shipment to insure arrival in good condition.

SPECIFICATIONS FOR WATER CLOSET COMBINATION, REVERSE TRAP TYPE

Shall be a low tank outfit complete with bowl, tank and flushing mechanism. Bowl shall be of vitreous china of reverse trap type, with regular front, integral flush rim, seat post holes on 5½-inch centers, pedestal base, and floor outlet, all molded in the ware. Designed for 12-inch outlet roughing. Action shall be continuous without break in siphoning. Bowl shall flush and refill properly with not more than 3½ gallons of water. The water surface shall be not less than 8 by 7 inches, and the water

(Continued on Page 52)

Jobs Coming Up . . . .

TO BUILD houses for the families of Army and Navy personnel, one hundred million dollars has been appropriated by Congress. In addition to this, the Lanham Act authorized $150,000,000 for housing under the Federal Works Administration to be used upon recommendation by Defense Housing Coordinator C. F. Palmer if private industry could not undertake to build the houses.

It is up to the FWA to designate what unit of that agency or some other Federal agency shall do the work. Under FWA, there are five agencies available—PBA, USHA, WPA, PWA and Public Roads Administration.

The Lanham Act further empowered the administrator of FWA to shift any of the funds previously allocated him to defense housing so that, it is stated, today the Army housing fund of $45,762,000 is being spent under the provisions of the Lanham Act and not according to those of the Army-Navy $100,000,000 housing measure. The major change in this connection is in the unit cost. Under the Lanham Act provision is made that the cost must average not more than $3,000 per unit exclusive of land and utilities.

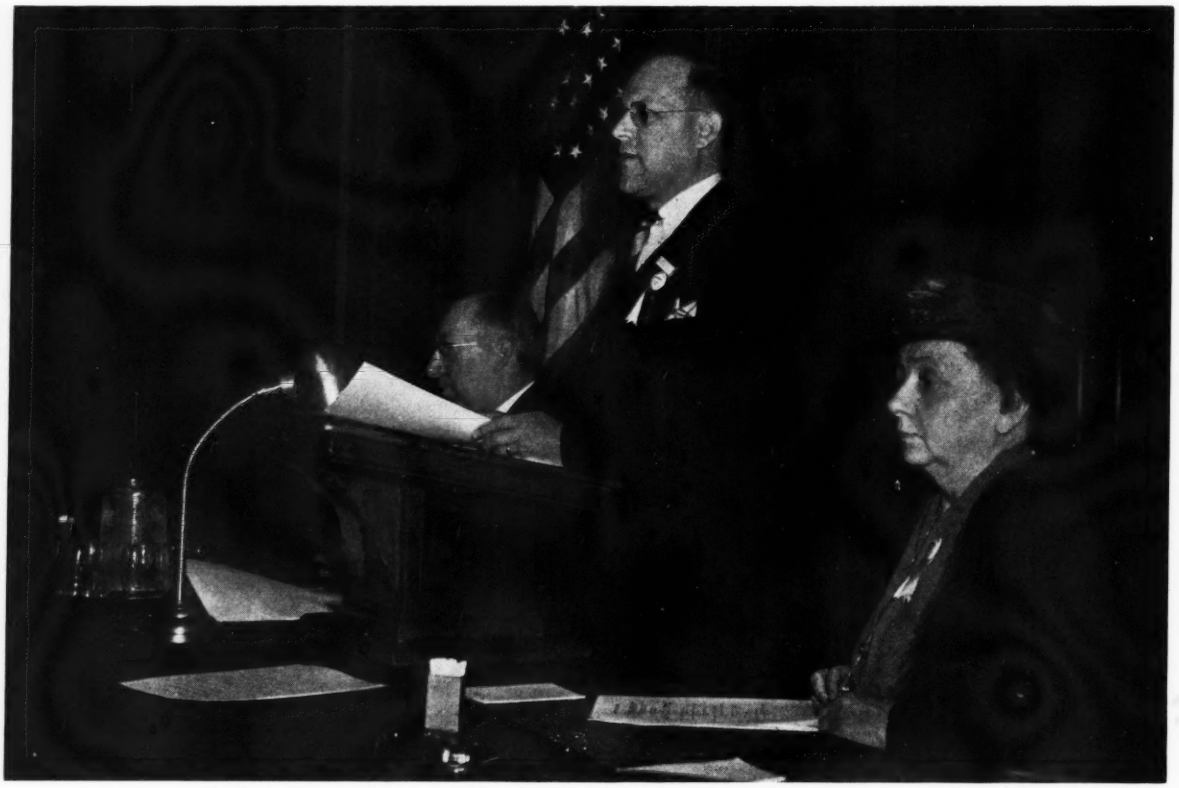
The following list of projects are on the Army list of construction. On few, if any, have the contracts been let at this time. While most of the buildings will be constructed to house the families of Army personnel, a few are to house industrial workers for plants making military supplies.

Station	No. of Units Occupancy
Municipal Airport, Tucson, Ariz.	150; Army
Benicia Arsenal, Benicia, Calif.	50; Civilian
Expanded manufacturing program	
Fort Ord, Calif.	450; Army
Fort Ord, Calif.	100; Civilian
Municipal Airport, Fresno, Calif.	150; Army
March Field, Riverside, Calif.	150; Army
Hamilton Field, San Rafael, Calif.	175; Army
Municipal Airport, Stockton, Calif.	150; Army
Moffett Field, Sunnyvale, Calif.	150; Army
Fort Logan, Denver, Colo.	50; Army
Lowry Field, Lowry Field, Colo.	125; Army
Fort Dupont, Delaware City, Del.	20; Army
Municipal Airport, Orlando, Fla.	100; Army
Municipal Airport, Tallahassee, Fla.	100; Army
MacDill Field, Tampa, Fla.	300; Army
Municipal Airport, West Palm Beach, Fla.	300; Army
Municipal Airport, Augusta, Ga.	125; Army
Fort Benning, Columbus, Ga.	350; Army
Fort Ogelthorpe, Rossville, Ga.	50; Army
Municipal Airport, Savannah, Ga.	325; Army
Scott Field, Belleville, Ill.	100; Army
Municipal Airport, Boise, Idaho	100; Army
Chanute Field, Rantoul, Ill.	200; Army
Savanna Proving Grounds, Savanna, Ill.	200; Civilian
Expanded Ordnance development	
7th Corps Area Training Center, Corydon, Iowa	250; Army
7th Corps Area Training	

The information in this article on defense housing jobs was obtained by Domestic Engineering's Washington correspondent so that readers may learn of projects to be constructed in their areas well in advance of the closing of contracts. Plumbing and heating on these jobs will mainly be let to subcontractors on either a cost-plus-fixed-fee basis or by competitive bidding, according to the Government's previously stated policy. —Ed.

(Continued on Page 69)

National Defense



Comes to Wholesalers

NATIONAL defense came to wholesalers at a Conference on Wholesale Distribution of Consumer Goods, held November 12 in Washington, D. C. The meeting, called by Miss Harriet Elliott, consumer member of the National Defense Advisory Commission, considered problems of supplying the needs of the national defense program. Several members of our industry attended. Merchant and distributor leaders of about 100 wholesaling groups were present.

Utilization of distribution channels, warehousing and storage facilities in the provison of **both** military and civilian requirements and wholesale price policies in consumer goods in relation to the defense program were the principal topics.

Before adjournment, the conference named a Wholesaling Trades Advisory Committee, and adopted the following resolutions:

"Whereas, our nation is faced with an emergency demanding united action on the part of all citizens, and

"Whereas, the wholesale function is an essential part of our national economy, therefore be it

"Resolved, that those in attendance at this conference on wholesale distribution pledge all cooperation to our Government and to the Advisory Commission to the Council of National Defense in its program of total defense."

"Whereas, the wholesalers of the country recognize the need for the maintenance of as low consumer price levels as are conducive to steady flow of consumer goods, therefore be it

"Resolved, that this conference pledge full cooperation to the Advisory Commission to the Council of National Defense to discourage any unwarranted wholesale advances.

"Be it resolved, that this conference go on record as discouraging excessive inventories which might adversely affect consumer and national defense needs."

Miss Elliott emphasized to the conference that the responsibility of wholesalers in national defense is "to watch cost and profit margins to avoid unwarranted increases and a skyrocketing rise in prices."

"Goods must be kept moving into civilian as well as military channels for

Principals at the wholesalers' defense meeting: Ralph Budd, transportation member of National Defense Advisory Commission; Dr. Theodore N. Beckman, a speaker; Miss Harriet Elliott, consumer member of the National Defense Advisory Commission

ultimate consumption," she stated. "That means keeping costs and margins at as low a level as is consistent with the services rendered.

"As operators in the field of wholesaling, I know that you are interested in speeding the flow of goods through your offices and warehouses. I am sure that you have as deep an interest as I in doing that job as perfectly as possible.

"We can start with the promise that, as a nation, we have committed ourselves to the task of securing total defense. This is a big job. It means more than the protection of our national physical plant. It includes what I like to call 'our human defenses'—the welfare of families—the men, women, and children behind the building of tanks, guns and planes. We are concerned with these civilian needs as much as with our military needs and necessarily so if we are to attain our goal of total defense.

"In times of acute emergency, we may have to make some sacrifices—but even under these conditions it is necessary to maintain the morale and the efficiency of all elements of our population. Toward this end, we all have a job to do, consumers as well as producers, wholesalers as well as retailers,

"I know that you have been thinking about your responsibility in this emergency. As leaders of great business organizations, you have been taking stock of your resources and of the contribution which your organization can best make to the nation's defense. Some of your organizations have appointed defense committees to guide the activities of your membership and to cooperate with official public agencies of defense. Others have undertaken to appraise your resources in the skills of your members, and various phases of your business capacities. I commend these activities which take inventory of our human and industrial skills.

"Housing projects for defense workers are now being constructed in a defense-dwelling program under the Commission's housing coordinator, Charles Palmer. In the planning of homes for defense workers, the Consumer Division has a special interest in seeing that the new developments meet standards of good housing and make for better living conditions in the communities where they are located. We are also concerned with living problems that may arise in expanding defense manufacturing centers. Food distribution facilities, milk supply, sanitation and other similar services may pose problems that will require cooperation between governmental and private agencies."

Four Points in Favor . . .

"THERE are four ways in which expenditures for national defense affect us favorably," said Frank B. Hackett, manager, plumbing fixture division of The Brunswick-Balke-Collender Company, and treasurer of the Plumbing and Heating Industries Bureau, at the recent fall meeting of the Southern Wholesalers Assn. He outlined the four factors as follows:

"(1) Purchases by the Quartermaster Corps of the Army and the Bureau of Yards and Docks of the Navy.

"(2) Housing for families of enlisted men in the Army and Navy, and housing for workers in arsenals and yards and docks.

"(3) Construction of new plants for defense industries with housing requirements resulting.

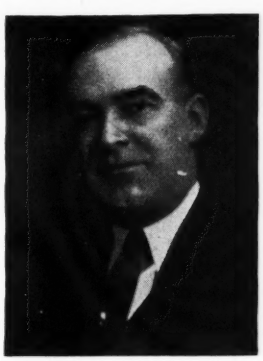
"(4) Stimulation of private industry by the huge expenditure for national defense.

"So much for the favorable side of the picture. What about the unfavorable?

"There is only one unfavorable factor, as I see it. The defense program is running in high gear. All of us want it to move as rapidly as possible, of course. However, we do not want the program to move so rapidly that private construction will be choked off either by (a) too rapid advance of prices; or (b) application of priorities.

"In addition to contracts let by the army and navy, there is, as I indicated, a big job of defense housing which involves large quantities of plumbing and heating materials.

"Defense housing includes shelter for the families of enlisted men in the army; homes for the civilians who work for the army and navy in arsenals and navy yards; and provisions for the



F. B. Hackett

families of industrial workers producing defense materials.

"The latest estimate of defense housing needs as made by C. F. Palmer, defense housing coordinator, is 226,000 units.

"It is to be hoped that private industry will take the initiative in defense housing so that these units may be built by private industry. The money is waiting and ready for private industry to undertake the job. . . .

"The plumbing and heating industries have been commended by the National Defense commission in the producing of materials needed by the Government for various phases of national defense.

"At the meeting in Cleveland on September 5, representatives of various groups of manufacturers organized the Plumbing and Heating Manufacturers Committee. The committee was set up as an informal non-governmental contact agency with the Construction Division of the Advisory Commission to the Council of National Defense. Our good friend, George E. Hoffman, is chairman of the committee.

"At this meeting, the representatives of manufacturers present were informed that the Construction Division wishes to have everything handled in orderly way through normal channels. The Construction Division will acquaint the plumbing and heating industries with its needs on an over-all product basis. Thus members of the industries will be able to prepare their individual inventories for the total requirements.

"Manufacturers, knowing in advance the total tonnage involved in requirements, should be able to adjust their inventories so that excess production will be avoided while, at the same time, adequate stocks will be on hand to fit into the defense requirements.

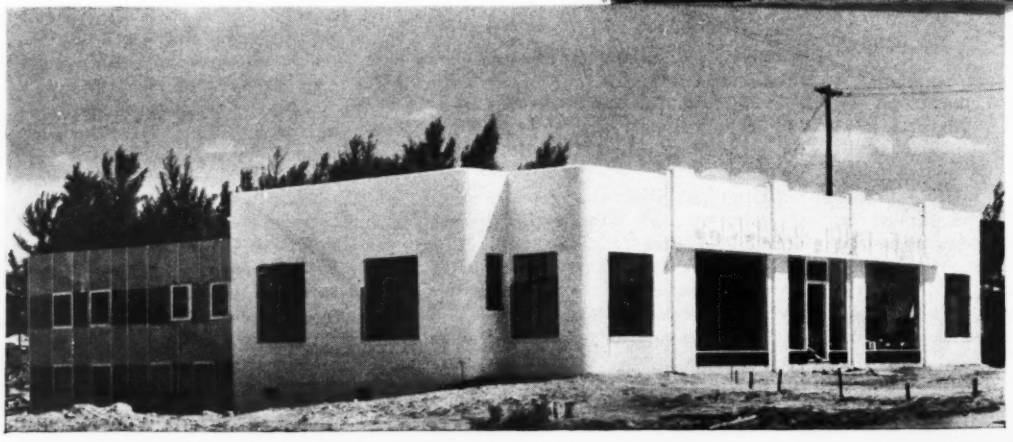
"Thus I believe I am safe in saying that there is no need for apprehension as to the ability of the plumbing and

(Continued on Page 66)

One view of the spacious, 3,000 ft. J. B. Green showroom providing an effective display of the various plumbing fixtures and heating equipment. Note the many windows which have been included to provide a natural display light in the daytime. At night, the showroom is illuminated by fluorescent lighting. A portion of the office space is shown at the extreme left

How to Open a Showroom

The opening of a new building or showroom occurs only once or twice in any contractor's career, but the publicity and advertising methods used by J. B. Green, Sarasota, Fla. to focus public attention on his new building can be used by most contractors in the ordinary conduct of their business. For example, note the number of important installations listed in this full-page newspaper ad



Described as "the outstanding building of its type in Florida," this white concrete building contains the latest scientific features of ventilation, insulation and lighting, and houses the J. B. Green Plumbing and Equipment Co., in addition to the other branches of the Green's Fuels organization which are the outgrowth of the plumbing business

'Green' Is the Word for 'Go'

This shoemaker's chill'un has shoes. Here's a plumbing and heating contractor whose new office-showroom (and business-building policy) is as modern as tomorrow

WHEN you walk into the new building housing the J. B. Green Plumbing and Equipment Co. in Sarasota, Fla., you are immediately struck with the department-store atmosphere. There is no waiting for attention. A young lady with an engaging and friendly smile, a neat appearing salesman, and even the company officials greet each caller and make him feel that here indeed is an organization which knows the consumer's problems and is prepared to render prompt, efficient and satisfactory service.

The new building is located on one of the main streets of Sarasota and at the entrance of a national highway. The white concrete structure embraces the latest features in ventilation, insulating and lighting, and is, according to the special section of the Sarasota Herald-Tribune which was issued at the time of the opening, "the outstanding building of its type in Florida."

Large plate glass windows in front and steel framed windows in the rear provide natural lighting for the effective display of plumbing fixtures, heating equipment, etc., in the 3,000 sq. ft. of floor space. At night, fluorescent lighting illuminates interior and exterior.

The rear center of the building is equipped with a long counter made of matched plywood; behind this are the general office and the salesmen's desks. To the right of the display room is the Green's Fuel department; here appliances are placed at optical advantage and there is a model kitchen, complete with stove, refrigerator, water heater, sink and cabinet unit in an attractive setting.

Complete Kitchen

J. B. Green, president, and Kenneth H. Koach, vice president and general manager of Green's Fuels, Inc., have offices in the left wing, while behind the display room is located a complete storage room for pipe, fittings, plumbing fixtures and tools. The plumbing shop is located in the basement.

The rear of the building consists of two wings, joined by a loading platform. Each wing has two complete floors, with stairways.

Four divisions make up the Green company. The oldest of these is the J. B. Green Plumbing and Equipment Co.; Mr. Green himself is well known throughout Florida as a heating engineer, and has conducted a plumbing and heating business for many years. Green's Fuels, Inc., Green's Fuel Sales System and the Sarasota Green's Fuel Gas Service—the other three divisions—are an outgrowth of Mr. Green's invention of an underground system of storing gas and his patented liquefied petroleum gas.

Heating Equipment

More than 800 customers and friends visited the modern plant on its opening day. The local newspaper published a special section in recognition of the firm, devoting several pages to descriptions of the new building and the company's facilities and policies. A full-page advertisement (see facing page) was devoted to the plumbing services of the company.

Thornton Wood, manager of the plumbing department, is a practical plumbing and heating contractor of 35 years experience. He is an active member of the master plumbers association.

Advertising and publicity play important parts in Green's merchandising program

FLEET OF TRUCKS IS MAINTAINED BY GREEN
Parking Space Is Ample At Green's New Headquarters
WOOD TO DIRECT PLUMBING DEPT.
These Firms Had Hand In New Building
30 EMPLOYES STAFF GREEN'S HEADQUARTERS

Types of newspaper publicity given the Green Plumbing and Equipment Company by a local newspaper are shown by these clippings

This is the story of
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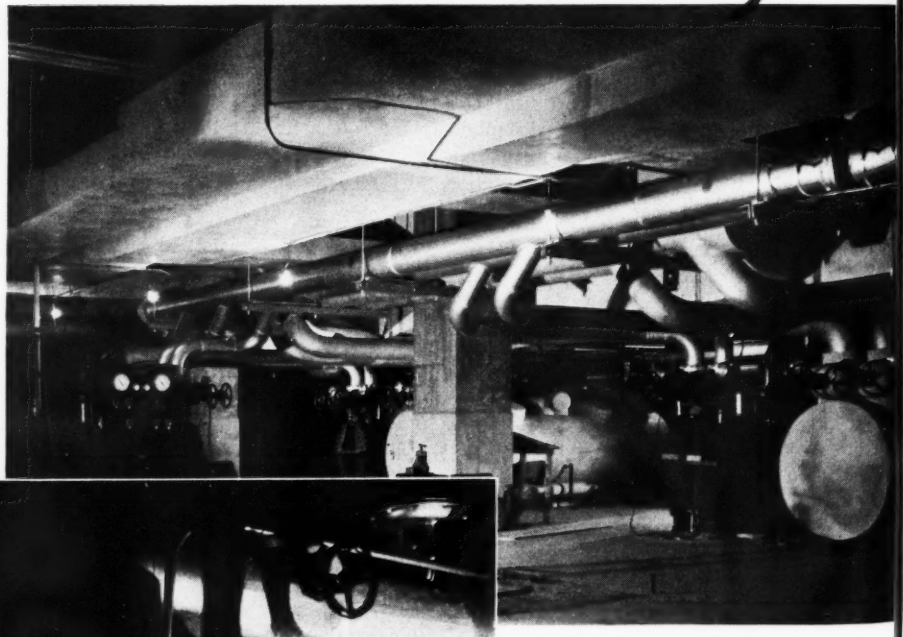
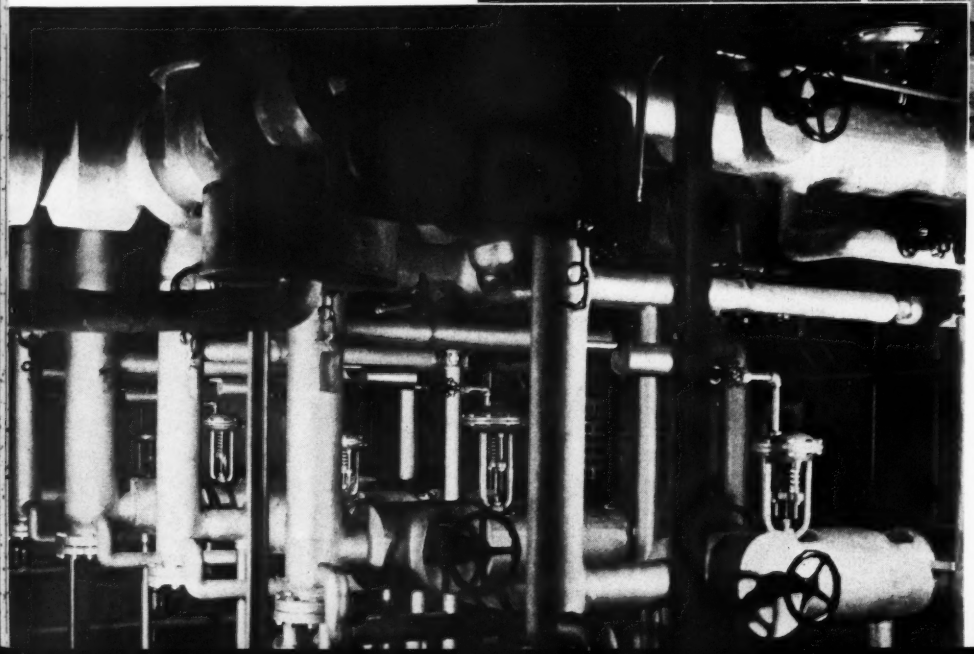
of an installation wh
through every ad

Air Conditioning—f

The photograph above shows a view through the tunnel which leads from the air conditioning equipment in the Gallery's basement. The piping shown carries hot and cold water, steam, and electrical and plumbing services around outer perimeter of Gallery with tappings at appropriate points for distribution

Below is pictured a view of the steam room. Here steam comes in from the Government central plant located in the southern part of the city and is reduced in pressure to the proper degree and then distributed through the tunnel shown above





The installation of compressors in the basement of the Gallery called for careful planning. The head room at many points of the basement was but 7½ ft., an insufficient amount of room to allow the installation of these units. Note the maze of piping and ducts overhead. The three centrifugal compressors, having a total capacity of 1,200 tons, are illustrated in the photograph above

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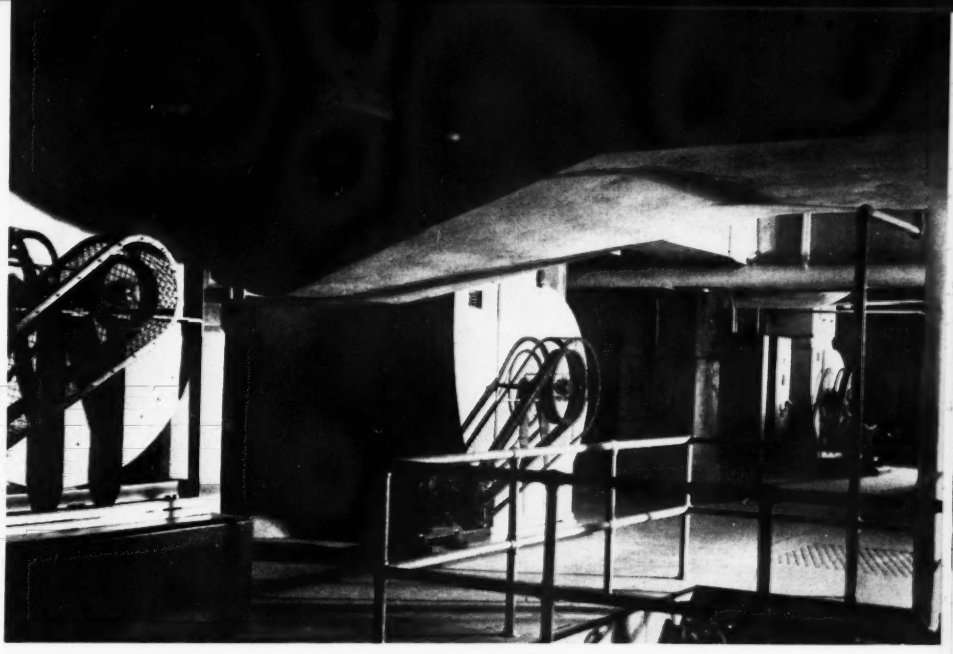


for Art's Sake . . .

THE priceless art treasures exhibited in the new National Gallery of Art in Washington, D. C., made it imperative that all factors of temperature and humidity be maintained at a nearly constant level. Although this is the largest building in the world constructed entirely of marble, none but standard equipment was used in its make-up, thus testifying to the excellent engineering of the air conditioning, plumbing and heating installations.

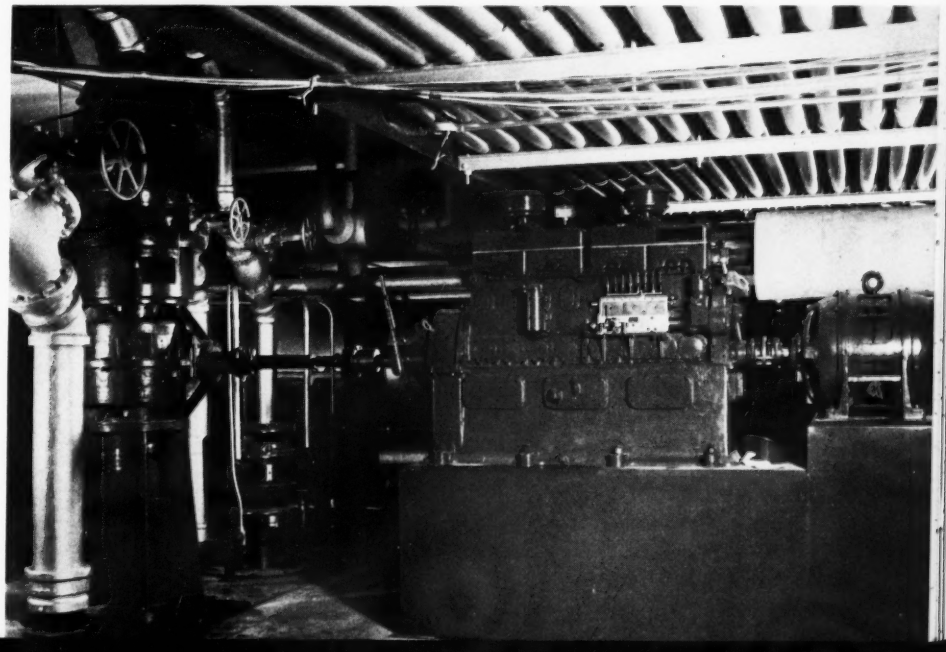
The air conditioning installation is the largest in government buildings in Washington with the possible exception of the Social Security Board building. It consists of a system of radiator heating combined with year-round air conditioning. The only direct heating in the Gallery building is in the office and service quarters.

Special problems, of course, were minimized as a result of the type of construction—solid marble walls, no windows, few doors and overhead lighting combined to cut down heat loss and cold air infiltration. There *were* difficulties, however. Chief among these was the job of fitting into the available basement space the necessary mechanical equipment and auxiliary apparatus. While originally 20 ft. of head room was available in the basement, all but 7½ ft. head room was taken up by conduits, piping, wiring, ducts, etc., throughout most of the area of the basement. It required careful planning, but finally the equipment was strategically located, as the photographs accompanying this article will illustrate.

Three centrifugal compressors with a total capacity of 1200 tons and a control board are some of the largest pieces of equipment.

Another interesting piece of equipment installed in the basement is a flood control unit consisting of a submerged centrifugal pump connected to a diesel-generator set. Often recurring floods in the section of Washington where the Gallery is located dictated its installation. It is so arranged and wired that if floods should short cir-

The picture at the top of the page shows one group of fans installed in the building. There are said to be more than 75 fans of all types in the Gallery. Below: Flood control unit consisting of a submerged centrifugal pump connected to a diesel-generator set



cuit the electric power being supplied to the building, the diesel engine will automatically start generating current in sufficient volume to light the building. At the same time, any flood water in the basement will be removed by the centrifugal pump which is put in operation at the same time.

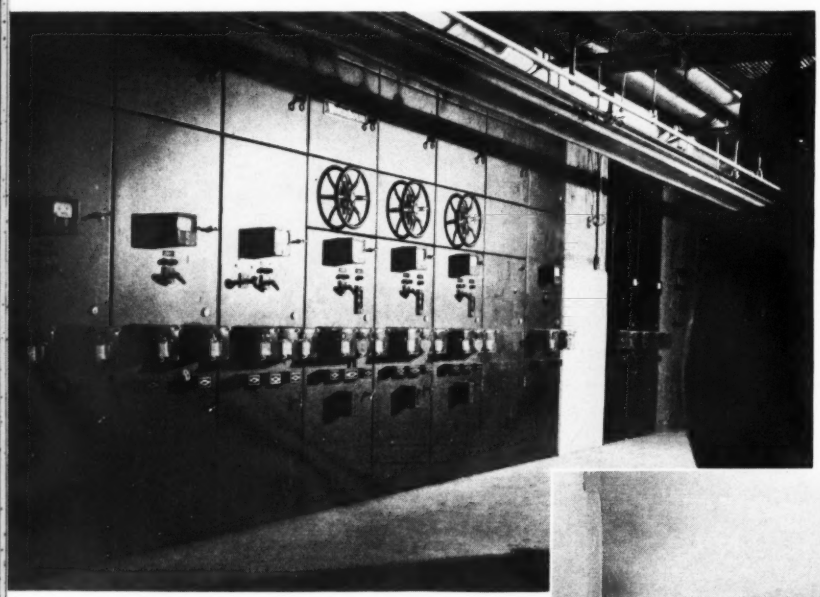
Steam supply for the building is obtained from the government heating and power plant in the southern part of the city; the government lines run underground at the two streets to the west of the Gallery. This made it necessary to locate the basement with its equipment and adjacent service areas at the western end of the Gallery. Water for the condensers is taken directly from the Potomac River through a large conduit. A tunnel starting from the basement winds around the outer walls of the gallery to carry piping, wiring conduits and ducts for the distribution of steam, hot and cold water, conditioned air and electricity.

Close control of temperature and humidity were needed to preserve the art treasures exhibited in this gallery

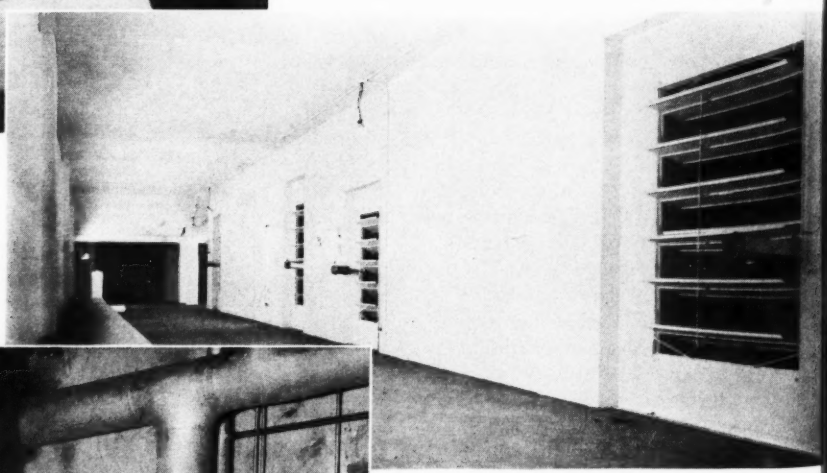
The ventilating and air conditioning system is zone controlled due to the sectional construction of the Gallery. In addition to the air conditioning system, special provisions are made for separate ventilation; fans located in the upper part of the building exhaust the accumulated sun's heat from immediately under the building's skylights.

Isolation and insulation of all mechanical equipment was attempted with a view to cutting down the noise of operation. It is forecast that this will result in as nearly completely silent operation as practical.

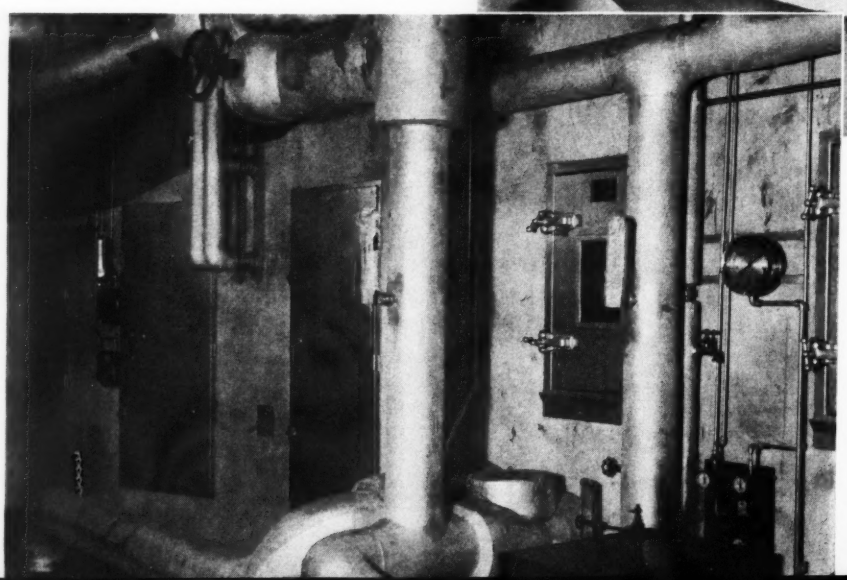
Riggs Distler Company, Baltimore, was the contractor on the job. Clyde R. Place was consulting engineer.



The compressor control board is shown in the photograph directly above. This is one of the four large pieces of equipment installed in the basement. The installation of this board also presented a problem because of lack of sufficient head room



The upper photographs shows intakes which supply fresh air for the conditioning system in the Gallery. Air conditioning in this building is zone controlled



A battery of air filters and washers is pictured at the left. Note the doors which allow access to the filtering and washing compartments for servicing and inspection

The quietly humorous type of Christmas card has the important advantage of allowing the contractor's message to enter the home on an informal plane

THE interest and pulling power of direct mail advertising can be heightened during the Christmas season through the use of good will messages on Christmas cards and stationery. Many contractors, realizing this, have made their Christmas message a "must" item on their list of mailings. At this time of the year, the reader is in a highly receptive mood and the good will sales story stands a better chance of being read.

Wise selection of the card, most contractors find, is necessary to secure attention, and carry the message most effectively. In selecting a card to work for him the dealer must avoid any commonplace card with trite wording. Roughly there are three types for the contractor-dealer to choose from: the etching type, the "gay modern" and the personal letter type, which can be written on special Christmas stationery or on the regular business letterhead decorated with a Christmas symbol. Some contractors prefer the latter type, since it gives additional space for a more personal thank-you-for-business message. The danger here, of course, lies in the possibility of becoming too wordy. Following is an example of an effective letter which has avoided commercialism and has been personalized just the proper degree to carry a friendly touch.

Dear Friend:

The Christmas season again brings us our most pleasant opportunity for a friendly salutation.

In the spirit of Christmas we would like to extend a personal greeting to you, and wish for you all the happiness that you are looking forward to this Christmas and the hope that your every ambition and plan will be fulfilled during 1940.

At this joyful season, we also wish to express appreciation for your patronage and good-will during the past . . . and will do our very best to serve you even better during the coming year.

We therefore consider it a privilege to extend to you our sincere wish for a Merry Christmas and the hope that health and happiness will be yours—ALWAYS.

Cordially,
J. H. WELSH & SON,
Plumbing and Heating Contractors.

The modern card is unobtrusive and carries the greetings in a direct and simple manner. Another advantage is attractiveness at low cost

Merry Christmas Cards . . .

The illustration at the lower right shows a typical modern Christmas card. This type is quite inexpensive but has the advantage of allowing the contractor to streamline his greeting. This card is also desirable because of its simplicity and directness of approach.

A last hint—the best time for mailing is a week before the 25th. When the card is mailed earlier than this the receiver is not yet enthusiastic enough; when mailed only a few days before Christmas, the card may be caught in the last minute rush and robbed of the attention it might otherwise get.

By giving a little thought to these few details the plumbing and heating contractor can avail himself of the gay, even though hurried, spirit of good fellowship that prevails during the Holiday Season, and build for himself good will and increased prestige.

IN GRATEFUL APPRECIATION
FOR GIVING US THE
BIGGEST YEAR IN OUR HISTORY

'Electric Skin' House . . .

. . . in St. Paul, shows temperatures at seven depths within the walls. Findings reveal facts on insulation, condensation, drafts, window exposures, humidity, attic ventilation, floor-and-ceiling temperatures, radiator locations—all of vital interest to heating contractors

TO THE motorist driving along Mount Curve Blvd., St. Paul, the colonial style house at number 545, with its wide sweeping lawns, appears to be but one of the outstandingly beautiful homes in the neighborhood. And up until only a very short time ago, few people knew that there was anything arrestingly different about the house.

Few knew, for example, that this home had been built as a scientifically equipped private laboratory maintained by its owner, a mechanical and research engineer, to make practical studies of home heating.

These studies, started as a hobby by Owner Milton S. Wunderlich, provide a host of excellent pointers toward what the heating in the average American home of tomorrow could be like.

Perhaps the outstanding fact that five years of studies have revealed to Mr. Wunderlich is that it is possible to produce uniform temperatures and humidities throughout his house, without drafts, cold corners and cold rooms, and to keep heating costs down to an amazingly low figure.

The Wunderlich home has approximately 23,000 cu. ft. of heated space. The heating plant is going approximately seven months out of the year (7,950 normal degree days per season) and furnishes a full quotient of hot water for a family of five twelve months out of the year. The average annual cost for heating and hot water is $95.00. The average annual cost for heating alone is about $72.00. The 23,000 cu. ft. of heated space includes a large basement recreation room, a large living room, a dining room, four upstairs bed chambers, a kitchen, breakfast nook, three bathrooms, together with hallways, closets, etc.

Oil Burner Heated

A split type oil burning heating system is used. The 33 by 12 ft. basement recreation room, the living and dining rooms and bed chambers have winter-conditioned air, while the kitchen, bathrooms and hallways are heated by radiation thermostatically controlled at each outlet. The two upstairs bathrooms, in addition to radiators, have piping beneath the tile floor so that when members

Mrs. and Mr. Wunderlich (the latter is associated with The Insulite Co.) check temperatures in various parts of the walls of their home as revealed on this master terminal-board

HEAT LOSS CALCULATIONS
for
Residence at 545 Mt. Curve, St. Paul

Exposed Surface	Total Sq. ft.	Transmission Coef. U.	Temp. Diff.	Total B.t.u. Loss per hr.	% of Total
Wall	1736	0.060	90	9,370	22.2
Ceiling	880	0.055	90	4,350	10.5
Floor	880	0.170	20	2,992	7.1
Glass	260	0.450	90	10,773	25.7
Doors	56	0.400	90	2,016	4.8
Infiltration cu. ft. per hour 7000		0.020	90	12,600	29.7
Total				42,056	100.0
Exposure 10%				4,206	
GRAND TOTAL				46,262	

Normal Degree-Days per season, 7,950

Gal. of oil consumed per season, $\frac{12284 \times 7950}{141,907 \times 80} = 870$

Gal. of oil consumed per Degree-Day, 0.109

*Infiltration based on 20 cu. ft. per ft. of crack.

of the family wish to use the bathrooms at night they will find the floor warm. The kitchen is radiator-heated; after the hour when the thermostat controlling the rest of the house has been shut down, the kitchen is still warm for anyone wishing to raid the refrigerator.

From the standpoint of providing for genuinely accurate records on heat distribution, heat circulation and heat loss, the most unique feature about the Wunderlich home consists of the 139 thermocouples built into the home—within the walls, inside and outside the walls, in the chimney stack, etc.—each of which extends to a terminal board in the boiler room of the basement. At this terminal board periodic measurements of temperatures in all parts of the house have been taken over the past five years. At the same time daily weather reports—including outside temperature variation, degrees of sunshine, wind velocity, etc.— have been kept so that data would be complete for correlating the readings taken off the thermocouples.

Results of Insulation

Most of the thermocouples were set out in groups, eight of them, as a rule, forming a battery for reading the temperatures of a single wall position. In a typical battery, the first thermocouple records the temperature 6 in. out from the wall inside the room. The second is beneath the wallpaper; the third next to the fibre insulation board; and the fourth between the insulation board and the rock wool. The fifth is between the rock wool and the outside sheathing, the sixth outside the sheathing, the seventh imbedded in the painting outside the house, and the last one 6 in. out from the house.

Inside the house, thermocouples are so arranged that readings can be taken to determine temperature differentials between floor and ceiling in each room at the return and supply ducts.

One of the most pertinent findings made by Mr. Wunderlich on temperature differentials within his home is that they are far below those of most homes. At zero weather outside and an indication of 70 deg. Fahr. inside, the differential in the outside corners of most homes without insulation or properly distributed heating outlets is from twelve to eighteen degrees from floor to ceiling, Mr. Wunderlich states. Under similar conditions his "laboratory home" shows an average differential of only four degrees from floor to ceiling. Mr. Wunderlich points out that such temperature variations have a considerable bearing on health.

The high degree of temperature uniformity in his home Mr. Wunderlich attributes first to the fact that his home is properly insulated, is weather stripped at all doors and windows, and has sufficient attic ventilation; and second to the proper placement of heat supply and return so as to give a good distribution of heat without drafts. The walls of his home are insulated with 3⅝ in. of rock wool with insulating board on each side in addition.

Heating in the Floors

Failure to give adequate consideration to exposure factors and to the natural flow of air in stairways is among the principal causes of poorly laid out heating plants, he says.

Discussing exposure factors first, Mr. Wunderlich points out that the effect of the sun is an important, often underrated factor. He has readings which show a differential of 52 degrees in one instance between the outdoor temperature and the temperature of the siding on the sunny side of the house. These readings showed the outdoor temperature to be 20 degrees below zero, with the siding at plus 32 because of the sun's rays. Another instance revealing the often underestimated effect of the sun's heat is in a reading taken on a day when the outside temperature was 85 deg. Fahr. This reading showed the top surface of the cedar shingles to be 162 deg. Fahr.

In designing the heating plant, account was taken of the necessity of giving more heat to the north side of the

(Continued on Page 50)

The table (above left) gives the heat-loss calculations for the Wunderlich residence in St. Paul. Below—Outwardly the house is not dissimilar to others in the neighborhood

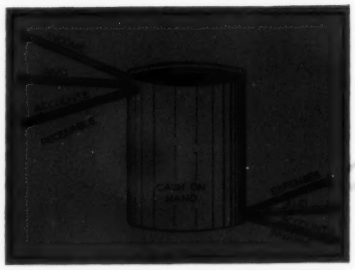
How to Control Expenses

Six simple, basic forms — or gauges — to use in detecting profit-leaks are here presented. The reasons for each, and the proper ways of using them, are described in easy terms

(Second Article in Series)

IN the November issue of DOMESTIC ENGINEERING the financial statements of a business were compared to the gauges of a tank. The *profit and loss statement* measures the intake (revenue) and the outgo (expense). The *balance sheet* indicates the water level (net resources) at a given moment of time. The bookkeeping system has many functions, the most important of which is the compilation of figures for these vital financial statements. It need not be complicated. It need not place a heavy burden on the office.

Even concerns which do not have complete systems find it necessary to do a certain amount of clerical work. For example, it is always necessary to keep a record of each workman's time so that his wages may be correctly computed. It is necessary to keep records of material and labor used on jobs so that selling prices may be determined. The law requires employers to maintain adequate records so that they may prepare correct social security tax and information returns. In many states sales records must be kept in order to facilitate the making of accurate sales tax returns. Additional records must be kept so that Federal and state income-tax returns may be made.



Each activity in a business can, for illustration, be easily compared to a water tank system in which income represents inflow, and each expense outflow

In many businesses these records and forms and tabulations are not properly integrated and co-ordinated. They are incomplete, or overlapping or topheavy. Jim Birkett's records are different. He knew he would have to keep records for all of these purposes—but he went a step further. He decided to make every figure count. Every figure entered or recorded in his office is part of a rounded, well-planned, bookkeeping system which enables him *with little additional effort* to prepare a complete, intelligently arranged financial report that tells him what his business is worth, how much it has earned, how it was earned, where the expenses were excessive and why.

Every form in his office was selected from the standpoint of this practical objective. There is no duplication of effort. Every form serves more than one pur-

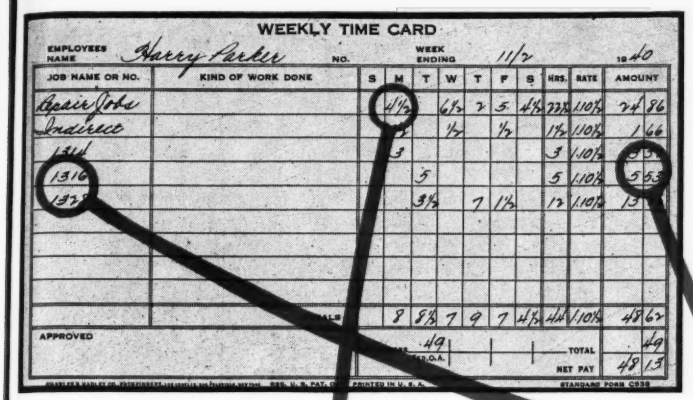
(Turn to Page 44)

PROFIT AND LOSS STATEMENT — Page 3

Period Ending 19

Line	ACCT. NO.	DESCRIPTION	CURRENT MONTH AMOUNT	CURRENT MONTH %	YEAR TO DATE AMOUNT	YEAR TO DATE %
1		Revenues				
2	301	New Construction Contract Sales	00000	00	00000	00
3	401	Less: Cost of New Construction Contract Sales	00000	00	00000	00
4		Gross Profit on New Construction Contract Sales	00000	00	00000	00
5						
6	302	Remodeling Contract Sales	00000	00	00000	00
7	402	Less: Cost of Remodeling Contract Sales	00000	00	00000	00
8		Gross Profit on Remodeling Contract Sales	00000	00	00000	00
9						
10	303	Repair Work Sales	00000	00	00000	00
11	403	Less: Cost of Repair Work Sales	00000	00	00000	00
12		Gross Profit on Repair Work Sales	00000	00	00000	00
13						
14	304	Appliance Sales	00000	00	00000	00
15	404	Less: Cost of Appliance Sales	00000	00	00000	00
16		Gross Profit on Appliance Sales	00000	00	00000	00
17						
18		Total Sales	00000	100	00000	100
19		Total Cost of Sales	00000	00	00000	00
20		Total Gross Profit	00000	00	00000	00
21						
22		Expenses				
23	501	Salaries	00000	00	00000	00
24	502	Indirect Labor	00000	00	00000	00
25	503	Pay Roll Taxes	00000	00	00000	00
26	504	Employee Compensation Insurance	00000	00	00000	00
27	505	Shop Supplies	00000	00	00000	00
28	506	Office Supplies	00000	00	00000	00
29	507	Motor Vehicle Fuel & Supplies	00000	00	00000	00
30	508	Gas, Light and Power	00000	00	00000	00
31	509	Telephone & Telegraph	00000	00	00000	00
32	510	Laundry	00000	00	00000	00
33	511	Depreciation	00000	00	00000	00
34	512	Insurance	00000	00	00000	00
35	513	Rent	00000	00	00000	00
36	514	Taxes	00000	00	00000	00
37	515	Repairs and Maintenance	00000	00	00000	00
38	516	Advertising	00000	00	00000	00
39	517	Accounting and Legal	00000	00	00000	00
40	518	Losses on Bad Accounts	00000	00	00000	00
41	519	Miscellaneous	00000	00	00000	00
42		Total Expenses	00000	00	00000	00
43		Net Operating Profit	00000	00	00000	00
44						
45		Other Income				
46	601	Interest Earned	00000	00	00000	00
47	602	Discounts Earned	00000	00	00000	00
48	603	Sale of Scrap	00000	00	00000	00
49	609	Other Income	00000	00	00000	00
50		Total Other Income	00000	00	00000	00
51		Total Net Operating Profit + Other Income	00000	00	00000	00
52						
53		Other Charges				
54	651	Interest Paid	00000	00	00000	00
55	659	Miscellaneous Losses	00000	00	00000	00
56		Total Other Charges	00000	00	00000	00
57						
58		Net Profit	00000	00	00000	00

Left: The Profit and Loss Statement, the end result of an efficient bookkeeping system, for which the first steps in bookkeeping are merely the means. The Profit and Loss Statement is the master gauge which tells the contractor whether he has a safe water level in the water-tank which is his business. Each of the steps leading to this statement will be described



WEEKLY TIME CARD

EMPLOYEES NAME Harry Parker NO. WEEK ENDING 11/7 1940

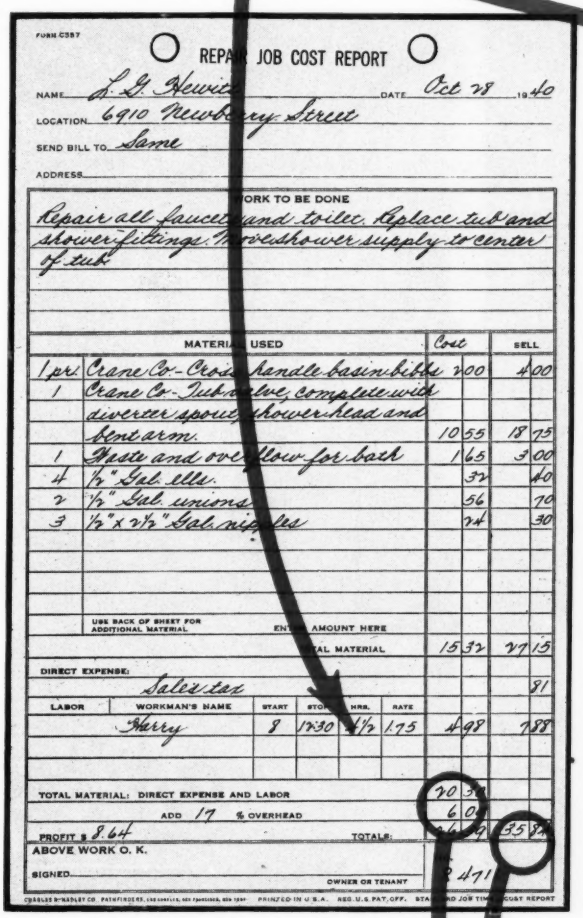
JOB NAME OR NO.	KIND OF WORK DONE	S	M	T	W	T	F	S	HRS.	RATE	AMOUNT
Repair Jobs			4½		6½	7	5	4½	27½	1.10½	29 86
Indirect					1½		1½		3	1.10½	3 33
1311			3						3	1.10½	3 33
1316				5					5	1.10½	5 53
1317				3½		7	1½		12	1.10½	13 31
			8	8½	7	9	7	4½	44½	1.10½	49 62

APPROVED TOTAL 49
NET PAY 48 13

STANDARD FORM C332

Fig. 1 (left): The Weekly Time Card, kept for each journeyman, which serves, in effect, as a gauge to detect labor leaks. The first two lines are always used for repair jobs and indirect time, respectively; the remaining lines of the card will accommodate seven contract jobs

Fig. 2 (below): The Contract Cost Envelope which, together with the requisition blanks which it contains, comprise an accurate record of individual contract jobs. Note item taken from Weekly Time Card to this record. Total costs on the contract job are recapitulated at the lower right of the envelope so that the contractor immediately can tell the profit or loss on the installation



FORM C337

REPAIR JOB COST REPORT

NAME L. G. Hewitt DATE Oct 28 1940

LOCATION 6910 Newberry Street

SEND BILL TO Same

ADDRESS

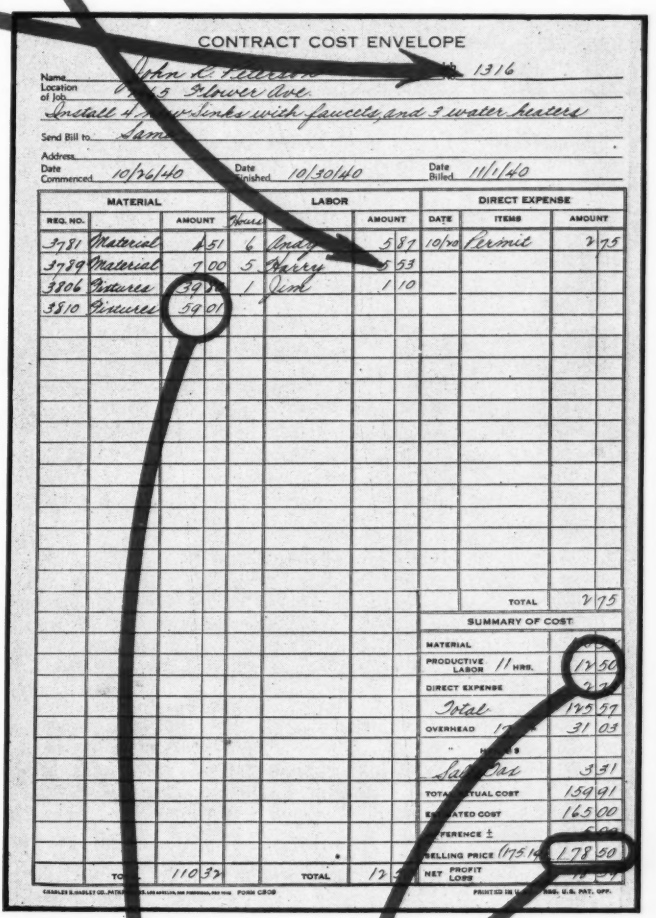
WORK TO BE DONE

Repair all faucets and toilet. Replace tub and shower fittings. Move shower supply to center of tub

	MATERIAL USED	Cost		SELL	
1 pr.	Crane Co.-Cross handle basin bibbs	7	00	9	00
1	Crane Co.-Tub valve, complete with diverter spout, shower head and bend arm	10	55	18	75
1	Waste and overflow for bath	1	65	3	00
4	½" Gal. elbs.		32		40
2	½" Gal. unions		56		70
3	½" x 2½" Gal. nipples		24		30
	USE BACK OF SHEET FOR ADDITIONAL MATERIAL — ENTER AMOUNT HERE				
	TOTAL MATERIAL	15	32	27	15
DIRECT EXPENSE:	Sales tax				81

LABOR	WORKMAN'S NAME	START	STOP	HRS.	RATE		
	Harry	8	1730	4½	1.75	8	98
						7	88
TOTAL MATERIAL: DIRECT EXPENSE AND LABOR						30	34
ADD 17 % OVERHEAD						6	07
PROFIT $ 8.64					TOTALS:	36	41
ABOVE WORK O. K.							
SIGNED	OWNER OR TENANT					2	41

CHARLES B. HADLEY CO. PATENTHOLDERS PRINTED IN U.S.A. REG. U.S. PAT. OFF. STANDARD JOB TIME COST REPORT



CONTRACT COST ENVELOPE

Name John C. Peterson No. 1316
Location of Job 6915 Flower Ave.
Install 4 new sinks with faucets and 3 water heaters
Send Bill to Same
Address
Date Commenced 10/26/40 Date Finished 10/30/40 Date Billed 11/1/40

MATERIAL REQ. NO.		AMOUNT	LABOR Hours		AMOUNT	DIRECT EXPENSE DATE	ITEMS	AMOUNT
3781	Material	$ 51	6	Andy	5 87	10/30	Permit	2 75
3739	Material	7 00	5	Harry	5 53			
3806	Fixtures	39 50	1	Jim	1 10			
3810	Fixtures	59 01						
							TOTAL	2 75

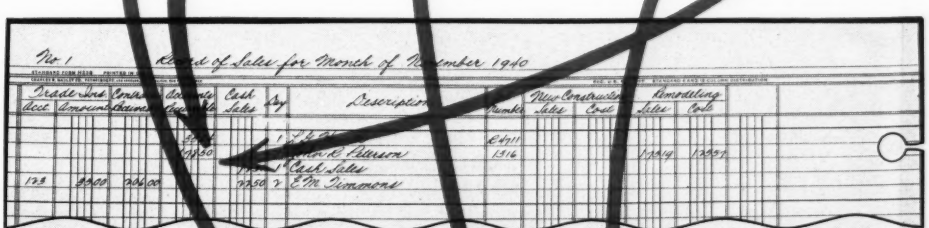
SUMMARY OF COST

MATERIAL		
PRODUCTIVE LABOR 11 HRS.		12 50
DIRECT EXPENSE		2 75
Total		145 57
OVERHEAD 17 %		31 03
" PROFIT 9		
Sales Tax		3 31
TOTAL ACTUAL COST		159 91
ESTIMATED COST		165 00
DIFFERENCE ±		
SELLING PRICE (175 14)		178 50
NET PROFIT LOSS		18 59

TOTAL 110 37 TOTAL 12

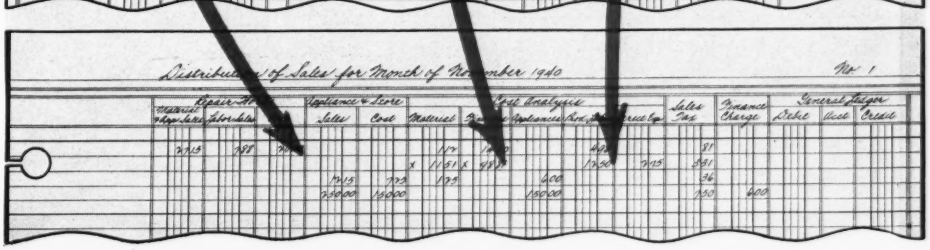
CHARLES B. HADLEY CO. FORM C808 PRINTED IN U.S.A. REG. U.S. PAT. OFF.

Fig. 3 (above): The Repair Job Cost Report, which gives a complete picture of cost for any individual repair job. Note relationship of items to Fig. 1, the Weeky Time Card. Labor is taken off the Time Card for this record



No. 1 Record of Sales for Month of November 1940

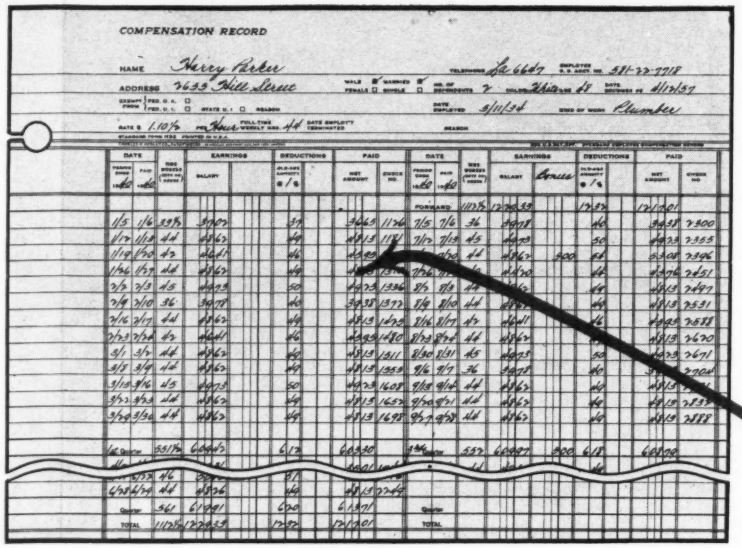
Trade Discount Account	Trade Discount Amount	Cash Discount Allowed	Accounts Receivable	Cash Sales	Key	Description	Number	New Construction Sales	New Construction Cost	Remodeling Sales	Remodeling Cost
			1								
			175 50			John C. Peterson	1316			178 50	132 57
				7 50	7	Cash Sales					
123	10 00	2 05		72 50	7	E. M. Simmons					



Distribution of Sales for Month of November 1940 No. 1

Miscellaneous Shop Sales	Repair Jobs Labor	Repair Jobs Materials	Appliance & Stove Sales	Cost	Material	Labor	Cost Analysis Expenses	Sales Tax	Accounts Receivable	Sales Tax	Finance Charge	General Ledger Debit	General Ledger Credit
	72 50	39 50			1 01	7 50		4 82	178 50	3 31			
					1	1							
			72 50	59 01	59 01				178 50				
			100 00	75 00	75 00		6 00	19 00		2 75			
										56		6 00	

Fig. 4 (right): Record and Distribution of Sales. Note data taken off Figs. 2 and 3 to make up the component parts of this record. All of these operations, and their reasons, are explained in text



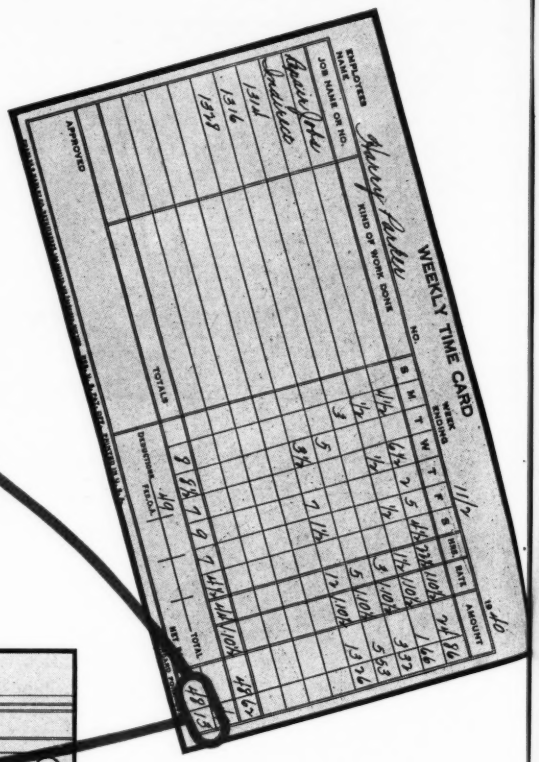
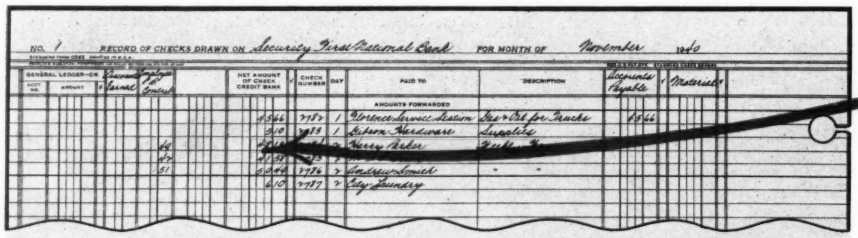


Fig. 12 (above): Details of the Compensation Record are taken from the Weekly Time Card at right (Fig. 1. repeated)



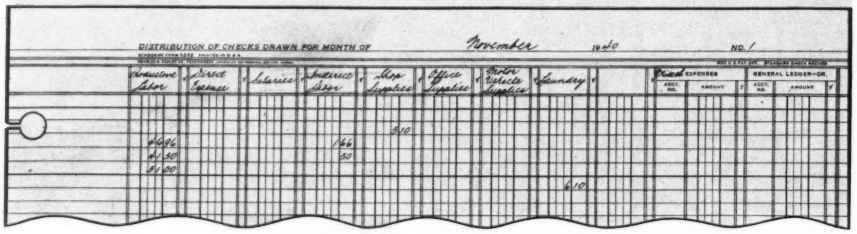


Fig. 1 (above): The Weekly Time Card, repeated to show its relationship to the Compensation Record and the Record of Checks (left)

Fig. 6 (left): Record of Checks, here presented in advance of its full description in order to show disposition of the items on the Weekly Time Card

. . . And Increase Profits

pose—the re-writing of figures is scrupulously avoided. The time card, Fig. 1, is a good example. Each card contains a complete record of one employee for a full week. It shows the time devoted to repair jobs in total and to each contract job. When the rate has been applied and the amounts entered in the column provided, the card serves as a posting medium to the job cost record and the employee's earnings record. It also provides the data for the preparation of the weekly pay check.

The data required for keeping books come from several different sources. One of the most important elements, affecting the cost records and the bookkeeping records themselves, is the cost of labor. The information regarding it comes from the time card, which will now be discussed in greater detail.

THE TIME CARD

The time card is arranged so that a man may record work done on several different jobs during the week. The first two lines always are used (in Mr. Birkett's business) for repair jobs and indirect time, respectively. The remaining lines of the card will accommodate seven *contract* jobs. *Repair* jobs are not analyzed on the time card, because time spent on them is detailed on the repair job cost reports. These reports will be discussed elsewhere.

At the end of the week, the time cards are checked and extended to show total hours and costs applying to repair jobs, indirect time, and each contract job. The hours and amounts applying to contracts are transcribed or posted to the respective contract job cost envelopes (Fig. 3). It will be noted that on Monday 4½ hours were spent on *repair jobs*. Reference to the repair job cost report (Fig. 2) will reveal that the entire 4½ hours were spent on repair job number R4711.

(Continued on Page 79)

Squeeze Play . . . . .

. . . on the firebrick in a boiler may cause cracks and result in lowered boiler efficiency. This article discusses care of brick before and during installation

THE economical operation of a boiler depends to a great extent on the protection offered by the firebrick and refractory lining. When cracks appear in the brick there is danger of the infiltration of cold air if the pressure of the furnace falls below that of the atmosphere. When the pressure inside the firebox builds up to a point higher than the outside atmosphere's, the heat will be forced through the boiler wall.

Domestic boiler firebrick, while not subjected to the extremes of heat and operating conditions found in higher pressure boilers, can still occasion many complaints. Not only may difficulties sometimes be encountered in the installation and maintenance of the brick, but the contractor must use care even in transferring the brick from one place to another. Journeymen should be instructed to use all possible pains to assure that the brick—especially that of easily injured shape and design—is not broken or cracked, and that edges and corners are not knocked off.

Brick should be carefully loaded and unloaded from wheelbarrows and stacked and piled carefully on edge. Irregular or large brick should be protected by straw or matting placed between the pieces. Storage should be made in a dry place since exposure to moisture or frost may weaken their bond and cut short their useful life.

The illustration, Fig. 1 (first presented on page 62 of the November issue of DOMESTIC ENGINEERING), pictures a trouble job encountered by one reader when called in to repair the firebrick lining of a large residential boiler. Of this condition, an engineer states, "The photo indicates a crack which was evidently caused by the expansion of the wall between the front and back walls of the firebox. Apparently no provision for this expansion was made. With masonry settings for *high* pressure boilers, it is common practice to set all walls in which expansion is likely to occur into the end walls, leaving an inch or so of space which is packed with asbestos rope or fiber asbestos so that a reasonable amount of expansion can be absorbed without producing undue stresses on the wall; this is illustrated in Fig. 2. Applying this principle to the problem in hand, the engineer states:

"Extent of expansion can be figured by taking the temperature change times the length of material involved.

(Continued on Page 85)

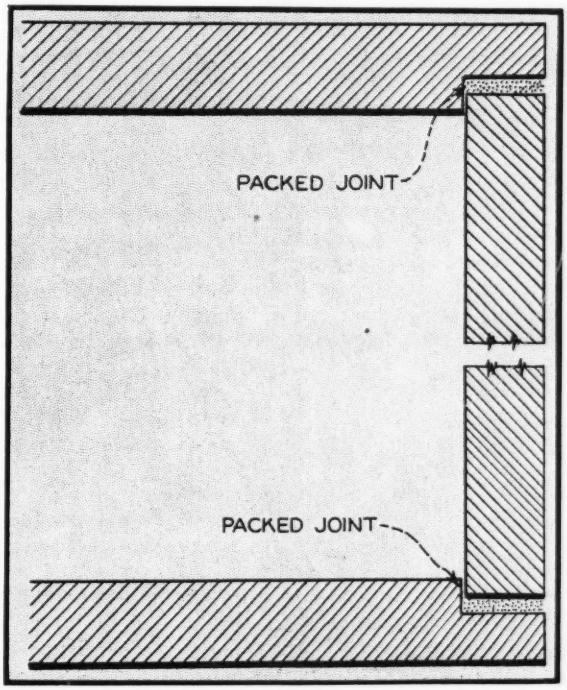


Fig. 1, Left—This is the crack one reader found in the firebrick of a large domestic heating boiler. The consensus, in this case, points to the missing expansion joint as the guilty party. Fig. 2—Drawing submitted by an engineer as a suggestion of the proper method of installing expansion joints in boilers of this type

Questions From Readers

Clear Ice

To the Editor:

One of our customers, unable to get clear ice from his plant, has asked us to quote figures on the cost of a distilled water plant which we can guarantee to give him clear ice. The present capacity of the plant, and one which seems to be adequate, is 4,000 lb. This is frozen in containers holding 200 lb. each; these containers are set in brine vats which hold a total of 40 cans, or 8,000 lb. Every 24 hours, twenty of these cans are removed and their contents cut into cubes by means of an electrically powered sawing machine. The set-up seems to be ideal for a distilled water plant as there is a high pressure boiler in operation day and night carrying a pressure of 90 lb. From this boiler a steam line could be connected to a heating element in a water heater or steamer which would discharge into a 600 gal. storage tank or condenser. We should like further information on the advisability of this plan and information on the installation of the equipment necessary.

Indiana. T. W.

To the Reader:

Several manufacturers have commented on this matter and below we present extracts from their letters:

"Distilled water ice plants are obsolete and their discontinuance was brought about by the superior quality of raw water ice and the lower total cost of manufacture. The core in distilled water ice was always much heavier and much more opaque than in the good quality raw water ice.

"In making distilled water ice, the usual practice was to take the steam from the engine driving the compressor and pass it through an oil separator and thence to the steam condenser—which usually was of the atmospheric type with steel pans to receive the water passed over the condenser. The water then went through a re-boiler where oil and air were removed. From there the process carried it to a cooling coil where the coldest water available was used for cooling the distilled water. From here it went to a charcoal filter, and finally, to the distilled water reservoir. It was spilled from the reservoir by means of a special filter into the cans; at no point was the water allowed to flow through the air.

"If live steam is drawn from the boiler for ice making purposes it will increase the cost of their ice considerably as they would require about ⅓ ton of coal to furnish steam for their two ton plant.

"If their present air agitating system is in good condition they might be able to greatly improve the quality of their raw water ice by installing a water purifying system. For this quantity of ice the expense should not be great. The main causes of cloudy ice are mineral water and an unsuitable air agitating system."

The Vilter Mfg. Co., Milwaukee Harry Sloan

Another manufacturer, while bringing up many of the same points mentioned in the letter above, states further:

"A change to an expensive distilled water system, in order to obtain clear ice, is not necessary. . . . Provided good, clean distilled water is available there will be no trouble in obtaining clear ice, but there is always the possibility of oil, from the steam equipment, getting into the water and destroying the clarity of the ice. Then, too, if air gets into the distilled water after leaving the distiller, this will spoil the clear ice. We suggest a reconsideration of the idea."

Curtis Refrigeration Machine Co., St. Louis.
H. C. Morrison.

Still another manufacturer writes: ". . . Our first consideration, provided the present air system and manufacturing system is up-to-date, would be to investigate the water being used for ice making. While there are some waters that will not give clear ice with air agitation most of these waters can be treated slightly to accomplish the desired results. We suggest this firm have its water analyzed to see if the treatment would not assist in making clear ice.

"If the firm is now using water treating equipment, then the distilled water method would appear to be the only recourse. . . ."

Frick Company, Waynesboro, Pa. R. M. Shuford.

Septic Tank Trouble

To the Editor:

Can you tell me what can be causing a septic tank to fill with sludge instead of changing the sewage entering it into a liquid which will drain off as it should? This particular tank is a three-compartment tank and it has a tile drain running from it to a large metal cess pool. A tile drain runs from that onto a bank where the end is open except for a protecting screen.

It has been necessary to have the sludge pumped out of the septic tank at least twice a year for some time because of the backing up of the sewage into the basement of the house. This despite the fact that we have several times placed material in it to help renew the bacterial action.

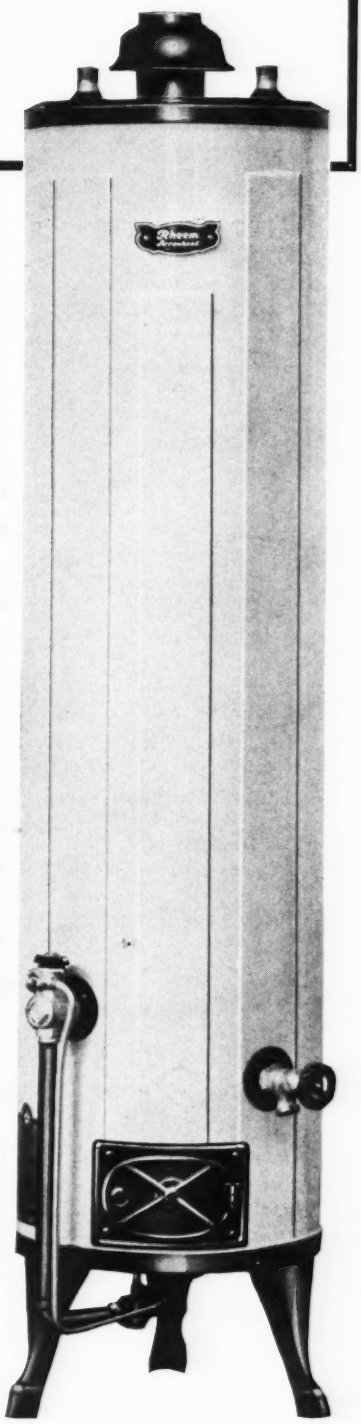
Five years ago, considerable quantities of bichloride of mercury were poured down one of the toilets. I have been told, however, that even if the bacteria were killed they should have been replaced long ago by natural action. Can you give me information on this?

To the Reader:

We are not certain what action the use of bichloride of mercury or drain cleaners might have on the action of the septic tank but, as the process is a bacteriological one we suspect it would be injurious. We suggest that

(Continued on Page 49)

ARE YOUR HOME-OWNERS PAYING FOR AUTOMATIC HOT WATER SERVICE AND NOT GETTING IT?



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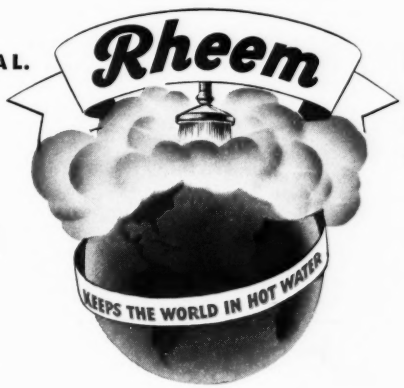

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the next time it is necessary to pump out the sludge, the inside of the tank be thoroughly flushed with clean water to get rid of the chemicals and that the tank then be allowed to fill with normal sewage to which some pieces of scum from a correctly functioning tank have been added.

The use of all chemicals should be discontinued and we would expect that the tank would then function perfectly after a week or two.

The following comments were received from a manufacturer to whom the letter was referred:

"There will be, of course, a mat of sludge form on top of any septic tank, the thickness of this depending on various factors. If this mat is present on top of the tank it is an indication that septic action is taking place. If this mat is present we would expect the difficulty either to be overloading of the tank, improper design or construction of the tank or a stoppage in the tank itself at the intake.

"If on the other hand, there is no mat on top of the tank, it indicates that septic action is not taking place and that this is probably due to chemicals in the tank which are killing the bacteria in the sewage. The temporary discharge of chemical into this tank would kill the bacteria, but as the reader states, the bacterial action should start up again after the chemicals have passed through the tank.

"The use of drain pipe cleaners in ordinary quantities does not usually have any effect on the action of a septic tank, but where trouble has occurred, we would suggest that this be checked, and if used, the quantity be reduced."

San Equip, Inc. K. D. Jaquith.

Answers From Readers

This question was presented in the October issue of DOMESTIC ENGINEERING and answers from readers were invited.

Mr. Jones wants Contractor-dealer Brown to install a tempering tank in his basement so that the water will not enter the heater directly from the city mains. He asks Contractor Brown what fuel savings he may expect to get by having this uninsulated tank in the basement, using the contents of the tank once every 24 hrs. The temperature of the surrounding air in the basement is 70 degrees; the temperature of the city water is 50 degrees; the water is to be heated to 150 degrees; and the tank contains 30 gals. Assume whatever fuel cost you believe reasonable and see what information Contractor Brown might have supplied Mr. Jones.

This month two answers were selected for publication. The first of these follows:

"Contractor Brown's analysis of the fuel savings effected by means of a tempering tank should be broken down into two parts, namely, summer and winter operation.

"During the summer, a tempering tank in Prospect Jones' basement will enable him to take advantage of the heat furnished gratis—by Mother Nature. Considering a uniform outdoor (and basement) air temperature of 70° F. during the five summer months, and assuming a fuel cost of 80 cents per million B.t.u., the estimated heat pick-up during this period can be translated readily into fuel savings as follows:

$$\frac{30 \text{ gal.} \times 8\tfrac{1}{3} \text{ lbs.} \times (70° - 50°) \times 150 \text{ days} \times 80\text{c}}{1{,}000{,}000 \text{ B.t.u.}}$$

= 60c, saved during summer months

"During the seven winter months, the theoretical saving computed in the same manner would be:

$$\frac{30 \text{ gal.} \times 8\tfrac{1}{3} \text{ lbs.} \times (70° - 50°) \times 210 \text{ days} \times 80\text{c}}{1{,}000{,}000 \text{ B.t.u.}}$$

= 84c, theoretical saving during the winter

"However, it is obvious that during the winter, any heat picked up by the tempering tank must necessarily be supplied by the heating plant. Disregarding the possible presence of an economizer, the heat thus furnished *is not free;* its exact cost will vary with the type of heating plant, the fuel used, and with the operating efficiency of the system. Whatever this cost may be, it must be subtracted from the theoretical winter saving previously computed, to determine the net saving due to the tempering tank.

"From the standpoint of economy it is doubtful that even the maximum total saving of $1.44 per year would warrant the expense of a tempering tank in this example. Perhaps if the incoming water were colder, if the fuel cost were higher, or if the size of the tempering tank were considerably larger, the expense of the installation might be justified.

"It is suggested that Contractor Brown accompany his fuel saving estimate to Prospect Jones with information regarding other advantages of a tempering tank. Such talking points as shorter heating-up time or increased hot water storage capacity may be quite applicable in this particular instance; in fact, for the given conditions, they appear to present the only sound argument in favor of the tempering tank."

Cincinnati. Harry E. Lewis.

The second letter, which takes the form of a conversation between Contractor Brown and Mr. Jones, follows:

"Mr. Jones . . . 'Good evening Mr. Brown—the problem I referred to over the phone is this: We use 30 gallons of hot water during a 24 hour period, and this amount of water is raised from a city water temperature

(Continued on Page 85)

Problem for Readers

To the Editor:

I have just installed an exhaust fan in a tavern to remove the smoke and stale air. An oil burning space heater is installed in the room and when the fan is turned on it puts the burner out. I have tried to hold the draft regulator open but when you do this the flame is sucked out of the heater; then, when the regulator shuts, the burner flame is snuffed out. We have tried putting the heater at different places in the room but the results are the same. Can you offer any suggestions?

Michigan. A. Q.

This section is a regular monthly feature of DOMESTIC ENGINEERING. *Readers are invited to send their solutions to the above problem to The Editor,* 1900 *Prairie Ave., Chicago. Five dollars will be paid for the answer selected for publication in the February issue.*

Electric Skin House . . .

(Continued from Page 41)

house and of providing it in such a way that a flow of warm air would parallel the wall to offset as much as possible the heat loss through the wall. The north side of the house has three such supply vents as against two for the south side. In addition to this, the north side has two radiators, one in the kitchen and one in an upstairs bathroom, while the south side has none.

The necessity of considering window exposures is shown in an interesting table (Fig. 1) which Mr. Wunderlich prepared to show the heat loss percentages for the various exposed surfaces of his home. This table shows that the loss of heat through the walls of the home

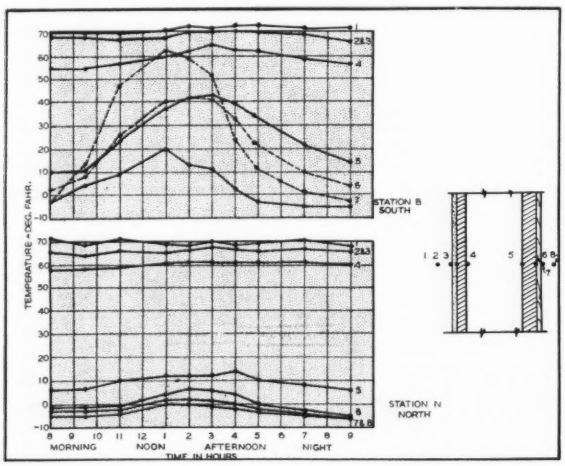


Table 2, showing (at right) the location of thermocouples through an exterior wall thickness and (at left) two groups of thermocouple readings on a January day. Note that one graph is for the south side of the house and the other the north

is 22.2 per cent of the total loss of heat per hour, while the loss through the windows is 25.7 per cent of the total. The importance of these facts is revealed by the figures which show that the walls total 59 per cent of the exposed surface of the house, while the windows are only 9 per cent. Mr. Wunderlich calculates that heat transmission through his windows is seven times faster than through the walls.

In the Wunderlich home it is possible to sit comfortably on the stairway and feel no draft. This, Mr. Wunderlich feels, is due to the caution exercised in the locating of the various duct outlets. The supply duct outlets on the main floor are all on the outer sides of the rooms, while the return outlets are located near the foot of the stairway, which occupies the approximate center of the house. The air circulates across the surface of the walls and toward the stairway, where the return ducts pick it up before it has had a chance of being drawn upward.

Just beyond the head of the stairway is a door leading to a small back porch. A supply duct is so located in the upper hallway as to send a stream of warm air across the face of this door to counteract any cool air infiltration from the door which might flow down the stairway. Precautions were taken in locating the return duct of the master bedroom. The main doorway of this bedroom is directly off the stairway. The outlet is located just inside the door to pick up cool air which might otherwise flow outward and down the stairs.

The importance of insulation in holding down fuel costs and in stepping up wall temperatures to cut down differentials from floor to ceiling cannot be overstressed, Mr. Wunderlich declares. A home, he says, should be considered as a business.

"Insulation should be installed on the basis of investment return. The amount of insulation used in a home should be determined by prevailing fuel costs and the geographic location (climatic conditions) of the home."

The effect of insulation in holding down heat loss can be seen in Tables 2 and 3 where thermocouple readings are shown over a period of thirteen hours on a typical sub-zero day. These readings show heat flow through

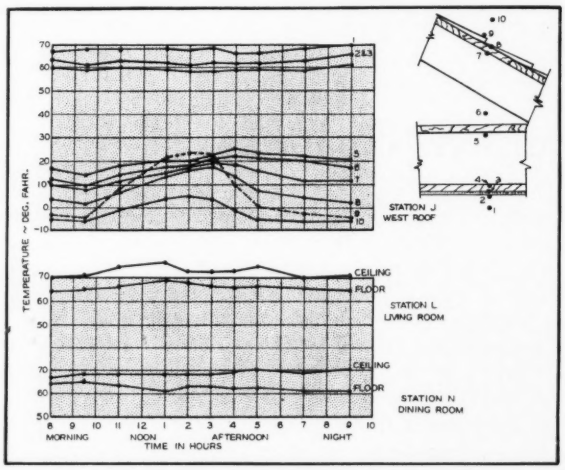
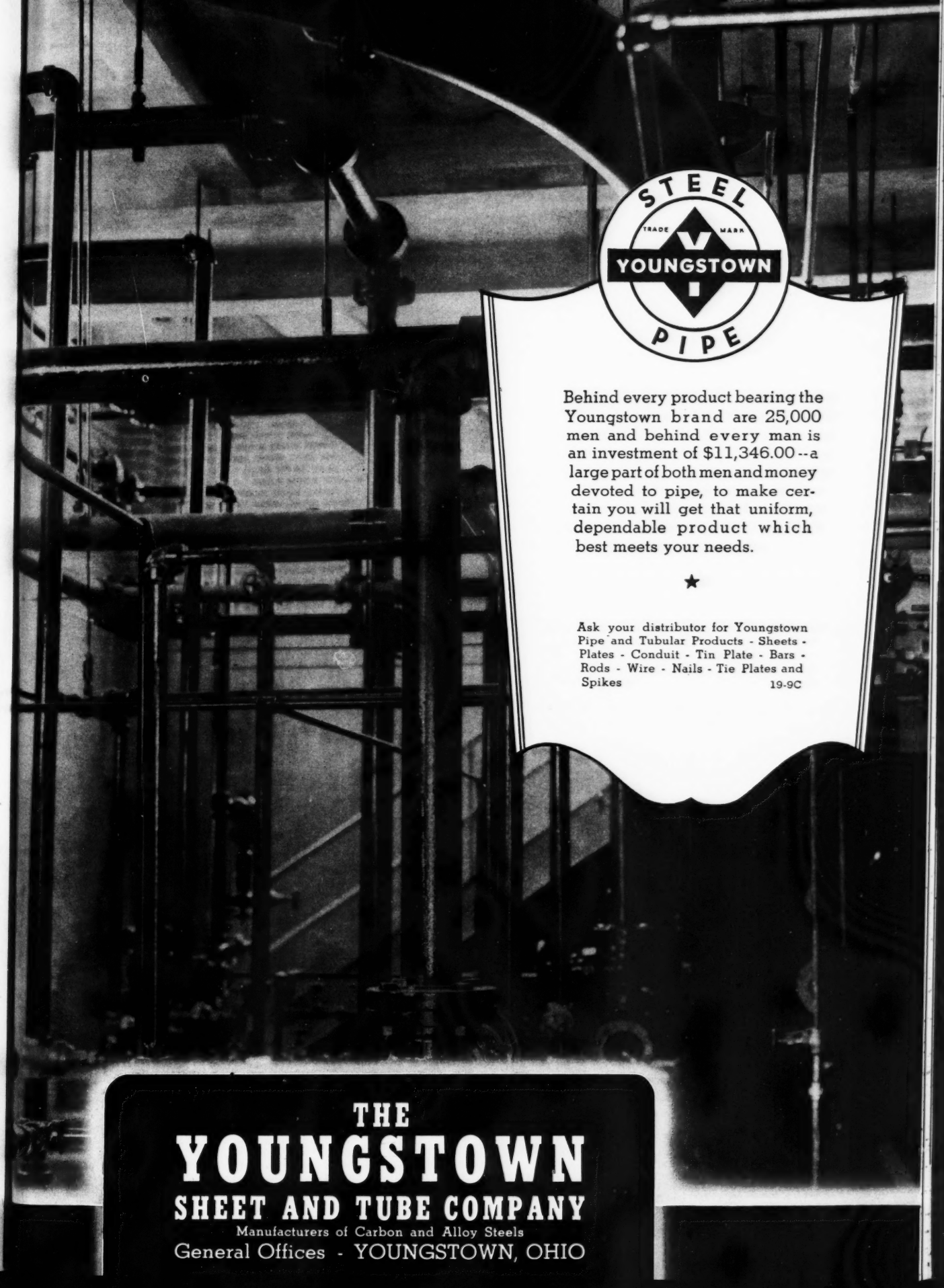


Table 3, showing (at right) location of thermocouples in the roof. Top graph shows readings on the west roof of the house; center shows ceiling and floor readings in living room; and bottom graph shows ceiling and floor temperatures in the dining room

the north and south walls and the west roof and also give ceiling-to-floor differentials, over the same period, in the living and dining rooms. It can be readily observed from these charts that the flow of heat outward is most retarded as it passes through the 3⅝ in. of rock wool insulation. The resistance to heat flow is approximately eleven times stronger through the rock wool insulation than it is through any other part of the wall.

(Continued on Page 83)



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THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices - YOUNGSTOWN, OHIO

What the Govt. Wants . . .

(Continued from Page 31)

seal shall be not less than 2½ inches. Trap way shall pass a solid ball not less than 1½ inches in diameter.

Tank shall be of vitreous china, either close coupled to bowl or connected with exposed flush pipe. Tank shall be of standard 18-inch size, having a capacity of not less than 3½ gallons (actual flush with supply shut off).

SPECIFICATIONS FOR RANGE BOILERS

Range boilers shall be of 30-gallon storage capacity, galvanized inside and out, and of all welded construction. Body of range boilers shall be of 14 gauge steel, tops and bottoms to be of 9 gauge, tested for 150 lbs. test pressure and guaranteed for 85 lbs. working pressure to meet specifications as outlined by the U S. Bureau of Standards.

Range boilers shall be thoroughly cleaned before galvanizing by the hot dipped process. Range boilers shall be furnished with 5 standard tappings and all threads are to be properly cleaned for ready installation.

SPECIFICATIONS FOR LAVATORY, STEEL

Steel lavatory, not less than 19"x17", to be 16 gauge or heavier and coated with porcelain enamel by the wet process and thoroughly fused to the steel base.

Steel lavatory to be supported by plain brass tubing legs, chrome plated, 18 gauge or heavier, or some equally practical method.

SPECIFICATIONS FOR WATER CLOSET COMBINATION, WASH-DOWN TYPE

Shall be a low tank outfit complete with bowl, tank, flush piping and flushing mechanism.

Bowl shall be of vitreous china of wash-down type, with regular front, integral flush rim, seat post holes on 5½-inch centers, back inlet, pedestal base, siphon trap at front, and floor outlet, all molded in the ware. Designed for 12-inch outlet roughing. Action shall be continuous without break in siphoning. Bowl shall flush and refill properly with not more than 3½ gallons of water. The water surface shall be not less than 8 by 7 inches, and the water seal shall be not less than 2½ inches. Trap way shall pass a solid ball not less than 1½ inches in diameter.

Tank shall be of vitreous china of the low type with vitreous china cover and complete trimmings with flushing mechanism. Tank shall be of standard 18-inch size having a capacity of not less than 3½ gallons (actual flush with supply shut off).

SPECIFICATIONS FOR WATER HEATER, COAL BURNING

A coal burning water heater of at least 50 gallons capacity based on 250° F. temperature rise per hour.

Heater to have a water section, or water section and firepot with refractory lining, from top of heater to grate line. Heater to be factory tested at a minimum of 300 lbs. per sq. in. hydrostatic pressure and the water section affixed with permanent marking indicating suitability for at least 120 lbs. per sq. in. working pressure.

Minimum distance from grate line to bottom of feed opening 7". Minimum overall height 18". Minimum inside diameter 10". Minimum size flue connection 5" diameter or equivalent oval opening. Minimum weight of heater 85 lbs. Minimum size inlet and outlet threaded tappings 1" I. P. S.

Heater shall be equipped with a grate to burn coals the size of pea anthracite or larger. Heater shall be finished on the exterior surface to prevent corrosion. Heater to be shipped assembled with exception of feed door, ashpit door and shaker handle, which may be securely fastened in place or fastened within heater.

SPECIFICATIONS FOR BUILT-IN OR RECESS TYPE BATHROOM MEDICINE CABINET

Cabinet shall be recess type with full length mirror door. Cabinet shall be constructed of not less than 26-gauge steel. Construction may be welded or other approved construction with exposed jointing smoothly finished.

Each cabinet shall be provided with two (2) glass or steel shelves, removable or welded in securely to three sides of body, front edge of shelves to be rolled.

The door shall have curved shape top and overlap the entire cabinet, and shall be fitted with copper sprayed back double strength window glass mirror set in a white enameled steel frame approximately ¼" wide. Mirror to be thoroughly protected in door with fibre padding. Door shall be provided with enameled steel butt hinges welded on, with suitable concealed bullet-spring catch, and with chain type or rod and spring door stop.

Cabinet shall have slot with decalcomania for razor blade drop and shall have toothbrush holder inside of cabinet. The interior and exposed portions of cabinet shall be baked-on white enamel and furnished complete with installation screws. Approximate cabinet dimensions shall be as follows:

Wall opening .....16⅜" x 11⅜"
Mirror size .....20⅜" x 13¼"
Inside depth of cabinet.....4½"

SPECIFICATIONS FOR WATER HEATERS, AUTOMATIC STORAGE TYPE, GAS

This specification covers automatic storage type gas water heaters in capacities of 15, 20 and 30 gallon, according to American Gas Association requirements:

All automatic gas water heaters must bear the A.G.A. Blue Star Seal of Approval or must pass equal test requirements.

Automatic gas water heaters shall be equipped with snap-acting visible adjustable type thermostat. Automatic gas water heaters shall be equipped with safety device to control the flow of gas to the main burner in case there is a failure of the gas supply. Automatic gas water heaters shall have a minimum of ½" of approved insulation. Automatic gas water heater storage tanks shall be not less than 14 gauge side walls, and not less than 12 gauge tops, the bottoms of these tanks shall be of sufficient gauge metal to withstand an internal hydrostatic test pressure of a minimum of 250 lbs.

Automatic gas water heater storage tanks shall be of the hot dipped galvanized type. Automatic gas water heaters shall have a minimum input of 15,000 Btu. Automatic gas water heaters shall be finished with a metal jacket baked enamel finish. Automatic gas water heaters shall be guaranteed by the manufacturer for a period of not less than one year.

Automatic gas water heaters shall include complete operating instructions and installation specifications. Water heaters shall be properly crated and packed for shipment to insure arrival in good condition.

SPECIFICATIONS FOR COMBINATION SINK AND TRAY WITH BASE CABINETS, STEEL

Sink and tray combination 48" to 52" long and 24" to 26" deep, with left hand or right hand tub and right hand or left hand sink, to be made of 16 gauge or heavier steel. Enamel applied by the wet process thoroughly fused to the steel base. To be furnished with chrome plated brass swing spout faucet. Tray furnished with P.O. plug or basket strainer. Sink to be furnished with basket strainer. Steel, porcelain enameled drain board to be supplied to cover tub.

Cabinet to include at least one cutlery drawer. Balance of cabinet to be divided into storage compartments. Doors inclosing the storage compartments and drawer fronts shall be at least ½" thick, double construction.

All cabinets shall be constructed of furniture steel free from buckles, pits and imperfections to insure permanent durability. All parts shall be assembled by electric spot welding for maximum rigidity and strength.

All cabinet front, sides and drawer and door fronts shall be manufactured of 22 gauge steel or heavier. All linings, compartments and partitions shall be made of 24 gauge or heavier.

Hinges shall be of heavy gauge steel, sturdy and sag proof. Catches shall be of a self-adjusting type, noiseless in operation, to hold doors secure. Drawers shall be furnished with brass drawer slides or equivalent for minimum amount of friction. Drawers shall be equipped with drawer stops to prevent drawers from falling out accidentally but to permit removal for cleaning. Doors shall be insulated to eliminate noise and shall close on rubber cushioning bumpers.

All cabinets shall be sprayed inside with a prime coat and finished with an enamel sprayed on and baked at a high temperature to result in a permanent white glossy finish. All cabinets shall be packed in approved type containers

suitable for all rail, water and express shipments, to insure safe delivery. All cabinets shall be fabricated clean and free from sharp corners, points and edges and shall embody first-class workmanship in all respects. All cabinets shall be completely assembled and ready for easy installation.

SPECIFICATIONS FOR COMBINATION SINK AND TRAY WITH BASE CABINET, CAST IRON

Sink and tray cabinet combination, 48" to 52" long and 24" to 26" wide, with left hand or right hand tub and right hand or left hand sink. Sink and tray to be of one piece high-grade cast iron; the enameled surface to be coated with porcelain enamel applied by the dry process and thoroughly fused to the cast iron base; quality to conform with the standards set forth in Bulletin CS 77-40 of the National Bureau of Standards, U. S. Department of Commerce, dated May 25, 1940, entitled "Sanitary Cast-Iron Enameled Ware." To be furnished with Chrome plated brass swing spout faucet. Tray furnished with P.O. plug or basket strainer. Sink to be furnished with basket strainer. Steel, porcelain enameled drain board to be supplied to cover tub.

Other specifications same as for steel, above.

SPECIFICATIONS FOR WATER HEATERS, GAS-FIRED, SIDE ARM TYPE

1. GENERAL:

Water heaters furnished under this specification shall be gas-fired, side-arm type for use with range boilers or other types of storage tanks. Such heaters shall be a reliable proven product of manufacturers regularly engaged in the production of this equipment, constructed of the best grades of workmanship and material, and designed for long life with sustained efficiency.

2. APPROVAL:

All equipment offered under these specifications shall be in accordance with the latest approved requirements for gas water heaters as set up by the American Gas Association.

3. GAS:

Water heaters shall be designed for operation on either natural, mixed, or manufactured gas.

4. CONSTRUCTION:

These water heaters shall be made with a cast iron jacket, the door forming the front half of the casing. They shall be constructed with a drip pan to catch condensation, with bottom feed mixer and raised drill port cast iron burner. All castings shall be either black japanned or finished in heat-resisting aluminum.

The mixer tube shall be supplied with an adjustable air shutter.

The gas cock shall be made of brass and carry A.G.A. listing.

The double copper coils shall be made of No. 20 Stubbs gauge, ¾" O.D. seamless copper tubing, brazed at both ends into brass manifolds, and tested to withstand a working pressure of 127½ pounds.

5. CAPACITIES:

For use with 30-gallon tanks, the copper coil shall be made of not less than 13 lineal feet of tubing, and have a normal input rating of not less than 20,000 B.T.U. per hour.

For use with 40-gallon tanks, the copper coil shall be made of not less than 16 lineal feet of tubing and have a normal input rating of not less than 22,000 B.T.U. per hour.

For use with 52-gallon tanks, the copper coil shall be made of not less than 20 lineal feet of tubing and have a normal input rating of not less than 25,000 B.T.U. per hour.

6. GUARANTEE:

Heaters furnished on these specifications shall be fully guaranteed for a period of one year against defects in workmanship and material. In case any portion or portions of heaters purchased under these specifications fail in service from causes due to workmanship or material, they shall be immediately replaced by new parts at the expense of the manufacturer. This shall not be interpreted to mean more than the replacement of parts F.O.B. point of installation.

7. PACKING AND CRATING:

Each water heater shall be substantially crated in a strong and efficient manner with crates constructed of new lumber of sufficient thickness to produce a durable and strong package.

SPECIFICATIONS FOR WALL CABINETS

All cabinets shall be constructed of furniture steel free from buckles, pits and imperfections to insure permanent durability. All parts shall be assembled by electric spot welding for maximum rigidity and strength. All cabinet fronts, sides and drawer and door fronts shall

(Continued on Page 54)

WINTER SOCKS hard THIS MONTH
BE PREPARED with BOILER "X"
Winter socks many a boiler hard this month and thousands of Heating Plants will go down for the count! But, Ol' Boy "X" has been bringing punch-drunk boilers back good as new for over 20 years. That's why Heating System Specialists always insist upon keeping Ol' Boy "X" in their corners. "X" finds and seals every leak instantly and permanently without shutting down the system. How about a fast moving carton for you right now . . . you can use it plus the solid profit and customer satisfaction it guarantees.
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LEAKY STEAM and HOT WATER HEATING SYSTEMS
HIGH and LOW PRESSURE BOILERS
X LABORATORIES INC.
25 WEST 45" STR.
NEW YORK
OTHER FAMOUS "X" PRODUCTS: "X" FLUSH & RUSTOFF • "X" PIPECUT OIL • "X" PIPEJOIN

be manufactured of 22 gauge steel or heavier. All linings, compartments and partitions shall be made of 24 gauge or heavier. Hinges shall be of heavy gauge steel, sturdy and sag proof. Catches shall be of self-adjusting type, noiseless in operation, to hold doors secure. Doors shall be insulated to eliminate noise and shall close on rubber cushioning bumpers.

All cabinets shall be sprayed inside with a prime coat and finished with an enamel sprayed on and baked at a high temperature to result in a permanent white glossy finish. All cabinets shall be packed in approved type containers suitable for all-rail, water and express shipments, to insure safe delivery. All cabinets shall be fabricated clean and free from sharp corners, points and edges and shall embody first-class workmanship in all respects. All cabinets shall be completely assembled and ready for easy installation. Wall cabinets shall be furnished approximately 13" deep, 30" high, and 30" wide. Doors shall be at least ½" thick, double construction. Cabinets to be furnished with handles of the concealed or projecting type, rust proof metal or plastic. All 18 to 20-inch high cabinets shall be furnished with one adjustable steel shelf and 28 to 30-inch high cabinets shall have two adjustable steel shelves rigidly constructed.

All cabinets shall be provided with heavy gauge steel hanger brackets with holes approximately 1" on center to facilitate installation. Bottoms of cabinets shall be double thick with inside of bottom free from projecting flanges or joints for easy cleaning.

SPECIFICATIONS FOR GAS FLOOR FURNACES

Overall depths shall be not more than 40" from the top of the floor grill to the extreme bottom. All furnaces shall be approved by A.G.A. Testing Laboratories and those equipped for bottled gases shall also be approved. The furnaces shall also be approved with 100% safety pilots. All outer casing parts shall be constructed of not less than 26 gauge galvanized iron. Outer casing shall be fastened in such a manner as to prevent opening of seams under severe handling.

All joints in the outer cabinet, particularly at the bottom, shall be tightly seamed or crimped in such a manner to eliminate the possibility of air leakage. Provision shall be made for cleaning of outer casing by incorporating a removable opening at the bottom of the furnace. Gaskets or other approved methods shall be provided between the opening in the casing bottom and the combustion chamber so that no products of combustion can possibly leak into the circulating air chamber.

Burners shall be securely supported and valves securely mounted, in such a manner as to prevent shifting of the valve out of alignment with the burner when pipe connections are made. All combustion chambers and all heating unit parts shall be made out of not less than 20 gauge iron and securely fastened to prevent the possibility of shifting either in shipment or during installation.

All combustion chamber parts shall be welded, lock seamed or made of other approved methods, so as to be mechanically gas tight. Double baffles shall be used between the hot and cold air chambers to eliminate possibility of heated air penetrating into the cold air returns, thereby retarding circulation. These baffles shall be constructed of not less than 26 gauge and should be easily removable. Means shall be provided to easily observe the burner as well as to easily light the pilot. If lighter hole caps are used they shall be attached to furnace in such a manner that they cannot be lost. Manually controlled furnaces shall be equipped with valves that can be easily converted for use with automatic thermostat controls. Diverter boxes shall be constructed in such a manner to make them easily attachable during installation. Attachments between the diverter boxes and combustion chamber outlets shall be constructed to eliminate the possibility of any products of combustion leaking into the circulating air passages. Grills shall be strong enough to withstand the normal amount of usage and finished in such a manner that it will not deteriorate from the heat of the furnace or scuffing of shoes.

Manually operated pilot valves shall be furnished with adjustment to limit maximum amount of gas to the pilot. Gas floor furnaces shall be furnished with gas approved by A.G.A. Each furnace shall be properly crated to withstand any rough handling which may be encountered. Each furnace to be equipped with installation instructions, operating instructions and a list of repair parts. Furnaces shall be available in approximately the following sizes, in floor and dual register types: 25,000 BTU input, 35,000 BTU input, 50,000 BTU.

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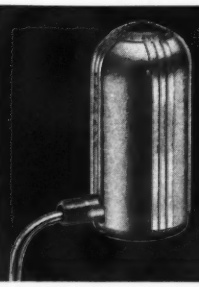

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AIROVENT. Offers same basic features of the Airliner at popular price. Two styles: with or without vacuum check. Both styles adjustable.

One of these MARSH AIR VALVES will handle the job better—

IF you want to be sure that you have the best, the most modern air valve for every service and price requirement, stick to the Marsh line!

In every valve bearing the Marsh name—from the superlative No. 2 Airliners down to the attractively priced Travall—you will find quality, precision, advanced design and beauty that can only be described as . . . Marsh.

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It's your handy guide and quick-reference price sheet on today's finest air valves.

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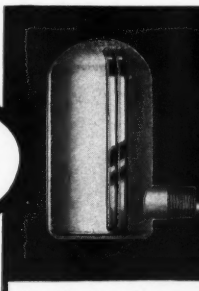
The oldest manufacturer — the newest ideas



No. 73. A really good valve, competitively priced. Large capacity, Marsh multi-port silent venting and many other advanced features. Venting rate is adjustable.

TRAVALL. A remarkable combination of high quality at lowest price. Similar to No. 73 but not adjustable.

MARVAL. Popular priced, high grade, chrome plated valve. Large capacity, quiet operation. Available with or without vacuum check.

Wm. R. Brookman, secretary of the Illinois Master Plumbers Assn., speaking at laboratory demonstration (See photo and caption, below right)

Contractors

News of . . Men . . Associations . . Events

League Dinner

One hundred and fifty contractors, salesmen and their wives attended the dinner-dance of the Northeastern Plumbing and Heating League, held at the Union Hotel, Wheeling, Ill., November 16. Members of the industry in the north shore towns, including Evanston, Wilmette, Winnetka, Kenilworth and Glencoe, were in attendance, as were master plumbers from Elgin, Joliet and Chicago.

A chicken dinner preceded the party, with N. J. Mergenthaler as toastmaster. Vic Killian of Winnetka, president of the Illinois Master Plumbers Assn.; Sec. Wm. R. Brookman; and Mrs. A. S. McKenna, president of the Illinois Women's Auxiliary made addresses.

Calif. Conference

The bi-monthly meeting of presidents, secretaries and managers of northern California master plumber associations, held November 13 in Martinez, reviewed and forecast legislative and business, as well as organization progress. Presiding was Chairman Harold Dixon of the labor and fair trade practice committee of the California State M. P. A. Those present included state and local association officials from San Francisco, Oakland, Berkeley, Sacramento, Stockton, Pittsburg, Richmond, Walnut Creek and Redwood City.

Business Mgr. C. Arthur Sanford of the state association spoke of his contacts in the field, including the promotion of inter-group cooperation. He also outlined his recent participation in formulating a state plumbing code in highly skeletonized form.

A.S.H.V.E. Annual

The program for the Kansas City meeting of the American Society of Heating and Ventilating Engineers is developing rapidly and the local chapter is making elaborate preparations for this seventh annual meeting, to be held January 27 to 29, in the Hotel Muehlebach.

The program committee has arranged four technical sessions and offers a group of subjects for discussion that should be of interest to every member. Among the topics selected are: Comfort in High Altitude Flying; Studies of Friction in Fluid Flow; Comfort and Health and Temperature—A Mathematic Solution; Reheating by Means of Refrigerating Compressor Discharge Gas; A Laboratory Method for Cyclic Heat Measurements on Walls and Roofs; Operating Costs of Residence Wall Heating System; Radiation as a Factor in Comfort Requirements; Summer Cooling in Research Residence with a Gas-Fired Dehydration Cooling Unit; Discussion of Codes.

The committee on arrangements is planning a program of entertainment that will be attractive to both members and guests. Chairman J. M. Arthur announces that a reception will be held on Sunday evening for the officers and members of the council and their wives. There will be an informal party for members and guests Monday night and the annual banquet is scheduled for Tuesday evening at 7:00 p. m.

L. A. Ordinance

A new amendment to the Los Angeles plumbing ordinance, relating to check valves, was incompletely described in last month's issue. For many years, the city of Los Angeles has made mandatory the installation in the water supply line of an automatic check valve on every flush valve. The amendment to this ordinance now does away with the necessity of such a check valve if the flush valve has a stable piston or is of the diaphragm type.

The amendment follows: "Every flush valve hereafter installed shall, in addition to the provision of an approved type of air inlet or vacuum breaker, as provided for in subsection (b), have installed in the water supply line thereof, an approved type of check valve, which is designed to close automatically whenever there occurs in such water supply line a reverse flow of any liquid or gaseous substance or of any mixture thereof; *provided, however, that, whenever a flush valve with a stable piston or diaphragm is installed, only a manually operated shutoff valve shall be required in the water supply line to such flush valve.*"

Pres. Chas. Watson of the Chicago association addresses master plumbers at November 25 demonstration at the city's official plumbing testing laboratory. Bornquist, Inc., Chicago, played host at this meeting, the feature of which was a grease trap demonstration

Part of group attending November 9 rally of master plumbers and wholesalers in Tampa. Three hundred were present

Mo. Ordinances

The legislative committee of the Missouri Master Plumbers Assn. has been instrumental during recent weeks in setting up individual city plumbing ordinances in the eastern part of the state. Recently Pres. Oscar Sutter of Overland and the legislative committee of Robert Scheer and Edward Quinn visited Hannibal, where, in consultation with the city engineers, health officers, and the state board of health, a tentative ordinance was prepared for that city.

Heating Meet

The Lorain (Ohio) Master Plumbers Assn. held its November meeting at the Deutschof. Twenty-five members attended the dinner.

The highlight of the evening was a talk by Harry Hall of Bell & Gossett Co. on "Hot Water Heating" and the remainder of the evening was devoted to an open forum in which many of the members participated.

L. A. Talks Defense

A talk on "Market Conditions of Pipe," by Eric Barnett of the Columbia Steel Co., Torrance, Calif., highlighted the November meeting of the Federation of Merchant Plumbers of Southern California at M.P.A. Hall, Los Angeles. The 60 members of various Southern California associations attended and enjoyed a turkey dinner prior to the business session.

A rise in the price of pipe due to the increasing demands for material by the national defense program and diversion of steel for use in other necessary products, was predicted as inevitable by Mr. Barnett.

Business Mgr. C. A. Sanford of the California State Assn. of Master Plumbers presented a report of the field work that had been done in connection with a proposed minimum plumbing code.

N. Y. Code

New York will get its plumbing code at the coming session of the state legislature.

Jacob Stockinger, Jr., president of the New York State Master Plumbers Assn., made this prediction at a meeting of the Rochester Master Plumbers Assn. recently.

Mr. Stockinger sajd that an amendment is to be asked to the state law requiring every non-employer in the plumbing business to have a license as a master plumber if he does work as such.

The present law reads that "employing plumbers" must have a license, which leaves a loophole for those who do work independently but are not master plumbers. In a decision by Supreme Court Justice Witschief, it was ruled that under the existing law a conviction could not be secured in a case where a journeyman was arrested for doing plumbing work without a license, for the reason that he was not an employing plumber.

Florida Rally

Three hundred wholesalers, manufacturers' representatives, master plumbers, journeymen, health officers and their wives attended a dinner-meeting held in Tampa, November 9 sponsored jointly by wholesalers and master plumbers of the Tampa and St. Petersburg, Florida area. This was said to be the greatest district meeting from the standpoint of attendance and interest ever promoted in Florida.

Toastmaster for the evening was Alex Orr, Jr., mayor of Miami, and president of a plumbing and heating firm bearing his name. In addition to Mr. Orr's talk, which recalled his experiences during the last 50 years in the industry, were speeches by P. D. Scudder, chief of Sanitary Department, St. Petersburg, on the work of sanitary officers in eliminating health hazards, and by L. L. Mears, Miami, president of the Dade County Master Plumbers Assn., who urged that increased work be done by both master plumbers and the auxiliary in the promotion of better sanitation.

Kenneth Koach, vice-president of J. B. Green, Inc., spoke on merchandising and the value of shop display. A. J. Wallace, manager, Crane Co., Tampa, presided at the meeting.

Three officers of the Florida Master Plumbers Assn.—President Blauvelt, L. L. Mears, vice-president, and J. E. Withers, executive secretary—recently held a conference relative to state plumbing and septic tank requirements under the State Board of Health. As a result of this discussion, the sanitation committee of the association has been instructed to cooperate with the state health department in proposing regulations for the proper installation of septic tanks, and to suggest other measures designed to protect public health.

STREAMLINE

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Rainbow PLASTIC SHOWER HEAD

A NEW *Fast Moving Profit Maker* FOR THE PLUMBER AND PLUMBING SUPPLY JOBBER

Here is the latest addition to the Mueller Brass Co. line for the plumbing and heating trade—the STREAMLINE Rainbow Plastic Shower Head. It is manufactured from Tenite and furnished in a great variety of different colors to harmonize with modern bathroom equipment as supplied by the national fixture manufacturers.

Conserves Hot Water

The STREAMLINE Rainbow Shower Head saves hot water. It is so constructed, and its orifices so arranged that it supplies ample water for the shower without excessive volume.

Positive Spray Control

The STREAMLINE Shower Head is designed so that its flow can be positively directed to any part of the body, and its spray can readily be kept within the confines of the bathtub or shower stall, thus eliminating the inconvenience of wet, slippery bathroom floors.

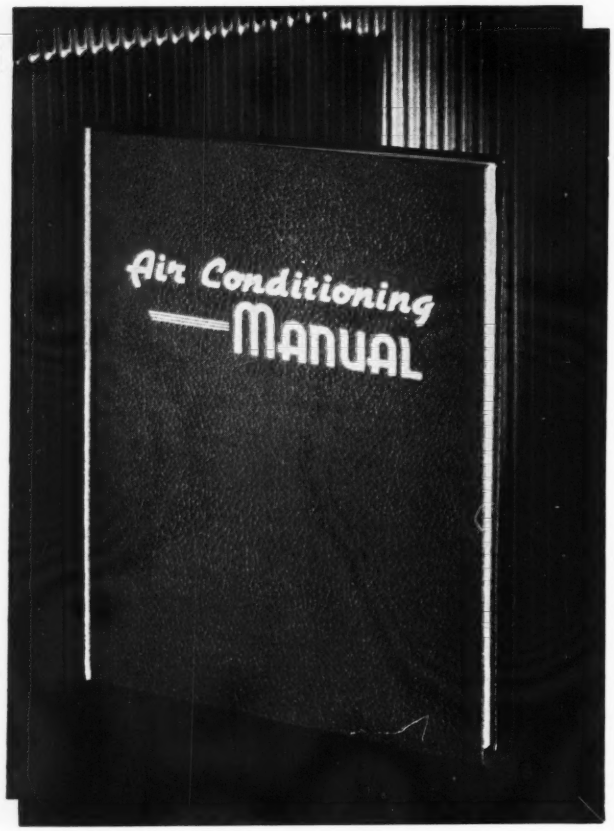
Will Fit Most Existing Shower Installations

The new STREAMLINE Rainbow Shower Head is readily adaptable to a majority of existing shower supply lines. The old one can be easily taken off and replaced with the new. The new Rainbow Plastic Shower Head is unbreakable, and through a new self-contained feature it is easily and quickly cleaned of any accumulation of lint, lime, etc., that may be in the water supply. Its cost is lower than most shower heads on the market.

In keeping with our policy of years standing of selling only through the plumbing trade, we are offering this attractive, quick selling, profit maker to you.

Get a supply from your jobber. Display it prominently in your show window. Its sales appeal is instantaneous.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN



Fundamentals ARE *Foundations* OF *Success*

TO be successful in any field, you must have a thorough knowledge of FUNDAMENTALS . . . basic facts on which your future progress depends. In the air conditioning field, this knowledge can be practically and simply acquired from AIR CONDITIONING MANUAL.

AIR CONDITIONING MANUAL is divided into two sections. The first contains 256 charts and blueprints. These diagrams are so fully explained that they may be applied to a particular job even by one with little or no practical experience. The second section contains technical reference data which supplements the first. Also clearly explained, this section enables the user to apply the information of the first section in a more detailed fashion.

You'll find the authoritative instructive contents of AIR CONDITIONING MANUAL of vital importance to you in the estimating, installation or specification of equipment. Consisting of 238 pages, size 8½x11, the cost of this MANUAL is only $3.00 per copy. Order yours today!

AIR CONDITIONING MANUAL is a large, beautifully bound book you'll want to keep handy for ready reference at all times. Clearly printed for easy reading. Contains 238 pages, size 8½x11.

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1900 PRAIRIE AVENUE, CHICAGO, ILL.

Air Conditioning MANUAL

Fla. Picnic

One hundred and fifty master plumbers, members of the master plumbers associations from Bradenton and Sarasota, Fla., wholesalers, journeymen and their families attended the associations' recent annual picnic at Myahka Park.

State Pres. Oscar Blauvelt, state Sec. Bob Wechetel and their wives and Business Mgr. J. E. Withers were present from St. Petersburg. Mr. Withers was introduced to his first good old Florida fish fry and became particularly enamoured of some mysterious dish called "Hush Your Mouth."

Coast A.S.H.V.E.

For the first time since its organization, the A. S. H. V. E. will hold a meeting on the Pacific coast when the 1941 semi-annual meeting is called to order in San Francisco, June 16, at the Palace Hotel. The council accepted the invitation of the Golden Gate Chapter and the committee on arrangements has been appointed by Pres. N. H. Peterson.

A gala program is promised for the week of June 16 and members of the entire heating, ventilating and air conditioning profession and industry on the Pacific coast will have the opportunity of attending the Pacific Heating and Air Conditioning Exposition at the Civic Auditorium in San Francisco.

The Board of Directors of the Heating, Piping and Air Conditioning Contractors National Assn. has announced that the 52nd annual convention of that organization will be held in San Francisco, St. Francis Hotel, during the week of June 16. J. E. McNevin, Denver, president of the association, stated that this convention will give the contractors of the Pacific Coast region an opportunity to learn more about their national association and how it works. A chance to meet the officers and directors and the committeemen who are responsible for carrying on the program which the Association sponsors will also be of benefit to the convention.

Sanitation Survey

Gov. John Stelle of Illinois has ordered the state health department to make an immediate check of the water supply and sanitary conditions at all state hospitals and institutions.

In a letter to Dr. Roland R. Cross, newly appointed health director, Gov. Stelle asked him to make such recommendations for construction, improvements, or alterations as he believed necessary, in such institutions, to promote and maintain therein the highest standards of health and sanitation.

Ga. Reorganizes

At a meeting held at the Henry Grady Hotel, Atlanta, approximately 50 members of the reorganized Georgia Master Plumbers Assn. discussed proposed legislation to be presented at the coming session of the state's general assembly, and the further organization of Georgia contractors.

The meeting was an all-day session, with Pres. Ben J. Seckinger presiding. Cities represented at the meeting included Atlanta, Augusta, Columbus, Gainesville, Macon, Monroe and Savannah.

Other officers are C. V. Millrons, vice-president, and W. Reid Puckett, secretary-treasurer.

Buffalo Meet

One of the largest gatherings of Buffalo master plumbers in recent years attended the Buffalo Assn. of Master Plumbers meeting in Hotel Touraine, November 14. The meeting, sponsored by the Chase Brass & Copper Co., featured a demonstration of water tubing, sweat fittings and tubular brass goods.

The affair also served as the regular monthly business meeting of the association, with Pres. Gordon A. Webster presiding. Fred Fleishauer, executive secretary, talked on advertising.

Obituaries

L. B. Hull

Lewis B. Hull, 52, died recently. He was a former president of the Berkeley-Albany (Calif.) Master Plumbers Assn., and a member of the examining board of the Berkeley building department. He had been in the plumbing business 30 years.

G. E. Robinson

George Edward Robinson, Sr., 82, a past president of the Master Plumbers Assn. of Texas, died at his home recently. Mr. Robinson entered the plumbing business in 1900. He served as city commissioner of water works from 1919 to 1923.

J. E. Smith

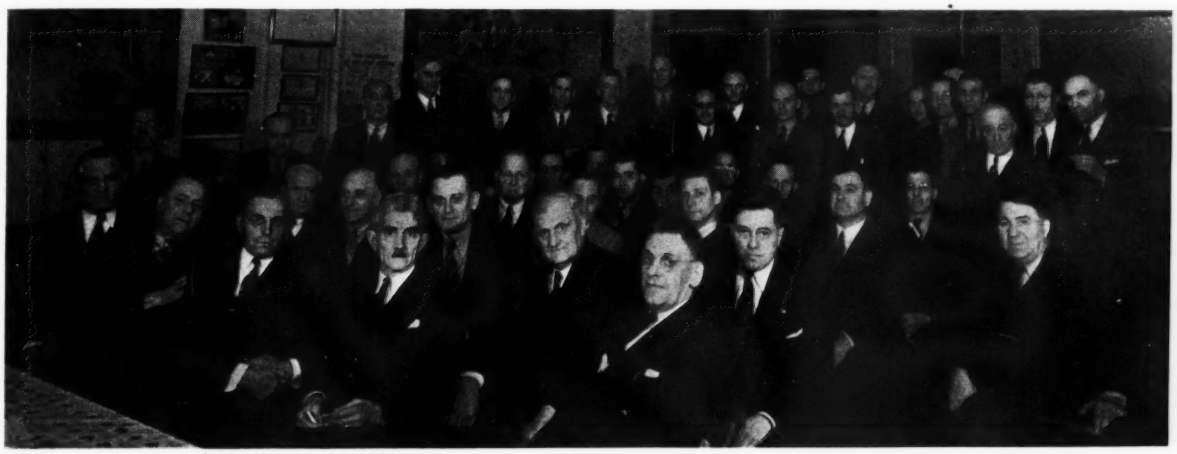
J. E. Smith, 74, a plumbing and heating contractor of Charleston, S. C., for 60 years, died recently. He was the oldest active master plumber in Charleston.

Morris Glick

Morris Glick, 58, a plumbing contractor of Atlantic City, N. J., died November 2. He is survived by his wife.

W. H. Walters, Sr.

William H. Walters, Sr., 70, a retired heating contractor of Philadelphia, died in Wildwood, N. J., October 17. He is survived by five sons.



Group picture taken at a recent meeting of the Buffalo Assn. of Master Plumbers. Twenty-seven new members were reported

E. J. Ryan

Ed. J. Ryan, past president of the Illinois Master Plumbers Assn., and for many years engaged in the plumbing business in Danville, Ill., died recently in Rochester, N. Y. He is survived by his wife and daughter.

W. F. Adams

William F. Adams, 63, well known plumbing contractor of Milwaukee, died recently. He is survived by his wife, two daughters, two sons and two sisters.

Albert Traunecker

Albert Traunecker, 61, a plumbing contractor for the past 40 years in Camden, N. J., died recently in Audubon, N. J. He is survived by his wife and a son.

T. A. Stockstill

T. A. Stockstill, 57, manager of the Hutchinson, Kan., branch of the W. B. Young Supply Co., died recently. Mr. Stockstill had been associated with that firm for the past 20 years, and was well known in supply circles. He is survived by his wife, one son and one daughter.

Christian Brenner

Christian Brenner, 85, a Buffalo plumbing contractor for 54 years, died recently. Mr. Brenner had not been active in business for some time, having turned over the management of his company to his three sons.

E. P. Lindahl

Eric Peter Lindahl, 68, a plumbing contractor in Brooklyn, N. Y., for 42 years died November 22. He is survived by his wife, a son, a daughter and three grandchildren.

Convention Dates

January 13-16 — REFRIGERATION — Third annual Refrigeration and Air Conditioning Exhibition; to be held in Chicago at the Stevens Hotel.

January 13-16, 1941—ILLINOIS—Annual convention of the Illinois Master Plumbers Assn.; to be held at the Pere Marquette Hotel, Peoria.

January 27-29—A.S.H.V.E.—Forty-seventh annual meeting of the American Society of Heating and Ventilating Engineers; to be held in Kansas City, Mo.; with headquarters at the Hotel Muehlebach.

January 28-30 — WISCONSIN—Annual convention of the Wisconsin State Assn. of Master Plumbers; to be held in Milwaukee, with headquarters in the Hotel Schroeder.

February 1—CHICAGO—Annual dinner-dance of the Plumbing Contractors' Assn. of Chicago; to be held in the Red Lacquer Room of the Palmer House.

February 10-12 — OHIO — Annual convention of the Ohio State Assn. of Master Plumbers; to be held in Springfield. field.

March 17-22—OIL BURNERS—National Oil Burner Progress Exhibition sponsored by Oil Burner Institute; to be held at the Commercial Museum, Philadelphia.

April 19-27 — HOME SHOW — National House & Garden Exposition with the Illinois Master Plumbers Assn. cooperating; to be held in Chicago, at the Coliseum.

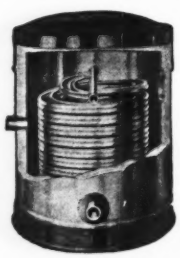
May 11-13 (tentative) — FLORIDA — Annual convention of the Florida State Assn. of Master Plumbers; to be held in Sarasota.

May 15-16—(tentative)—COLORADO—Annual convention of the Colorado Society of Sanitary and Heating Engineers; to be held in Denver.

June 16—A.S.H.V.E.—Semi-annual meeting of the American Society of Heating and Ventilating Engineers; to be held in San Francisco; at the Palace Hotel.

June 16—H. P. & A. C.—Annual convention of the Heating, Piping and Air Conditioning Contractors National Assn., to be held in San Francisco at the St. Francis Hotel.

Write your own profit story



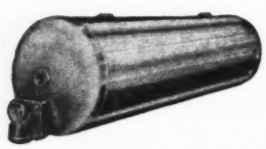
G & C PRODUCTS BRING YOU HIGH RETURNS

ALL COPPER TANKLESS WATER HEATER

Heavy gauge copper electric welded boiler water shell. Sediment collection eliminated by smooth shell surface. Light in weight. There are no gaskets or bolts. Heavily insulated . . . reduces radiation loss. Constant upward flow of heated water through coils allows circulating line to be used. Aquastat connection in every heater. Made for 4 gal. and 6 gal. per minute delivery of hot water, 100° rise in temperature.

Contact G & C for All Copper heating equipment and give your customers year 'round domestic hot water on a truly LOW COST BASIS.

Satisfaction is assured by time-proven guarantees. You can write your own profit story by tying in with the G & C line. See your wholesaler, or write us.

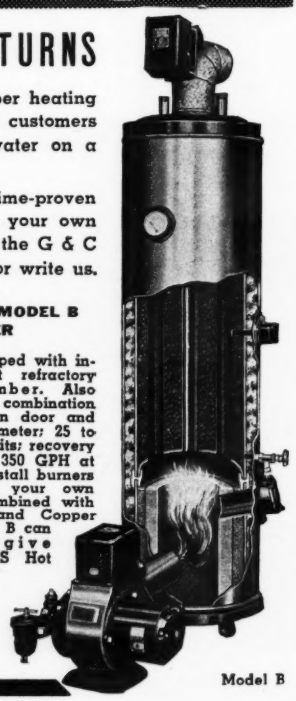


ALL COPPER SUBMERGED COIL STORAGE TANK

Electric welded copper tank guaranteed for 20 years. Coil in tank eliminates pipe radiation loss. Combines features of Instantaneous Heater with features of Storage Tank. Furnished horizontal only in capacities of 25-30-40-50-65 gallons, with water heating capacities up to 250 gallons per hour. Larger sizes on specification.

ALL COPPER MODEL B HEATER

Model B is equipped with insulated precast refractory combustion chamber. Also equipped with combination safety, observation door and indication thermometer; 25 to 80 gal. storage units; recovery capacities up to 350 GPH at 100° rise. You install burners and controls of your own choice. AND, combined with Copper tubing and Copper convectors, Model B can be installed to give Space Heat PLUS Hot Water.



Model B

Manufacturers for over a quarter century of COPPER and Everdur 20-year guarantee range boilers and tanks.

GERSTEIN AND COOPER CO.

1-3 W. 3rd Street So. Boston, Mass.

Write today for literature and layout drawings

Suppliers

News of Manufacturers and Wholesalers

I-B-R House

The I-B-R Research Home is now nearing completion, according to R. E. Ferry, general manager of The Institute of Boiler and Radiator Manufacturers.

The house is a six-room, two-story home with attached garage and full basement, typical of a certain class of FHA loan houses. Early in June, 1940, ground was broken for the new house at 801 West Green St., Urbana, Ill., a location just five blocks from the University of Illinois campus. The home is intended for field studies with steam and water heating systems and related equipment under actual home use conditions.

In summer, it will be used for cooling research.

This program has been made possible through contributions of the research group of the Institute. Thirteen manufacturers of heating equipment have supplied the funds for construction and operation for a minimum period of three years.

Burner Standard

The National Bureau of Standards, of the U. S. Dept. of Commerce, has announced the establishment of a new standard (CS48-40) for domestic burners for Pennsylvania anthracite (underfeed type), effective for new production from November 30. This new standard is a revision of standard CS48-34. The provisions of this standard are covered in a bulletin TS 2950, available from the National Bureau of Standards, U. S. Dept. of Commerce, Washington, D. C.

Stoker Mfgrs.

- *New sales promotion and advertising program planned at Chicago meeting*

A decision to combine the best technical and merchandising talent in the membership of the Stoker Manufacturers' Assn. in a new, solidified effort to establish a sound and effective cooperative sales promotional and advertising campaign in the new home building field was reached at the 1940 fall meeting of the association, held at the Stevens Hotel in Chicago on November 15. This, together with announcements of a concerted drive on the part of the association's individual members to put into effect practical and effective winter sales plans for leveling out the stoker sales curve, constituted the major considerations and discussions at the annual fall conference.

The advertising and public relations committee of the association was instructed to prepare a definite program of advertising for submission to the membership of the association at a special meeting to be held in Chicago about the middle of January.

"The problem of automatic coal heat in new homes, together with the growing seriousness of the extreme sales peaks and low valleys, with precipitous declines in sales in the winter months," Frank Hoke, president of the association said, "constitute two problems that will have our very earnest study and attention, and we are convinced that our association will soon take the necessary steps in cooperative effort that will materially strengthen our position in these respects."

Routine reports by chairmen of the association's various standing committees were made. A meeting of the engineering and research committee was held during the day. It was reported to the members that an agreement had been reached by the committee in the establishment of tentative data on standard recommendations governing boiler base heights and grate dimensions. This will be submitted to the stoker industry for acceptance and then prepared for submission to the manufacturers of boilers as the official recommendation of the stoker manufacturers.

Photographs taken at luncheon meeting of Stoker Manufacturers Assn., held in Chicago, November 15

F. A. Hollomon (left), Washington, D. C. branch of The Noland Company, receives water heater contest grand award from Edgar Morris, president of Edgar Morris Sales Company, Washington distributor for Pittsburg Water Heater Co.

Heater Contest

The recent National Gas Water Heater Sales Contest, running during July and August and sponsored by The Pittsburg Water Heater Corp., was won by F. A. Hollomon, representing the Washington, D. C., branch of Noland Company. The contest was based on individual sales by salesmen and was national in scope.

Kitchen Standards

Significant news for everyone interested in the construction of new kitchens or the modernizing of kitchens in existing homes, is the announcement of the adoption of standards for steel kitchen cabinets by members of the Steel Kitchen Cabinet Institute.

The standards cover such features as the gauge of the steel, construction of the cabinets, performance tests for rigidity, and finishes. Cabinets which meet the strict requirements of these tests bear the seal of approval of the institute.

The tests, made by an independent testing laboratory in Chicago, "protect the consumer against sub-standard merchandise—underweight steel, faulty or weak construction, inferior hardware, and cheap finishes. They give assurance of the substantial and durable construction of the steel cabinets purchased by the consumer," according to the Steel Kitchen Cabinet Institute.

Jobbers Credit

The grand ballroom of the Hotel Commodore, New York City, was crowded on the evening of November 16 at the annual dinner-dance of the Jobbers' Credit Assn. This affair always attracts many hundreds of the leading manufacturers and wholesalers.

As usual, the arrangements for the big gathering as well as the entertainment provided guaranteed an unusually successful evening for the large group in attendance. In charge of the dinner dance was a committee headed by Paul R. Berryman of Crane Co. and including Morris Arbramowitz, Daniel-Morris Co.; E. E. Basch, Regent Plumbers Supply Co.; A. M. Behrer, Behrer-Nason Co.; T. W. Bieder, Westchester Square Plumbing Supply Co.; Julius Buckman, Buckman Plumbing Supply Co.; T. Arthur Johnson, J. D. Johnson Co.; Julius Klein, New York Plumbers' Specialties Co.; Jacob J. Levine, J. L. Plbg. & Htg. Supply Corp.; Frank Michael, Michael & Goldberg Plbg. & Htg. Supply Co.; Leo M. O'Neil, M. O'Neil Supply Co.; T. W. Powers, Cornell & Underhill; Edward Sherman, Edward Sherman Supply Corp.; Robert Smolkt, Sam S. Glauber, Inc.; Morris Speckler, Morris Speckler Plbg. Supply Corp.; Michael Weinsier, Saltser & Weinsier, Inc.

The officers of the Jobbers Credit Assn. are Milton M. Goldsmith of Sam S. Glauber, president; Michael Weinsier, first vice-president; T. Arthur Johnson, second vice-president; Julius Klein, treasurer; Glenn B. Van Buren, executive secretary.

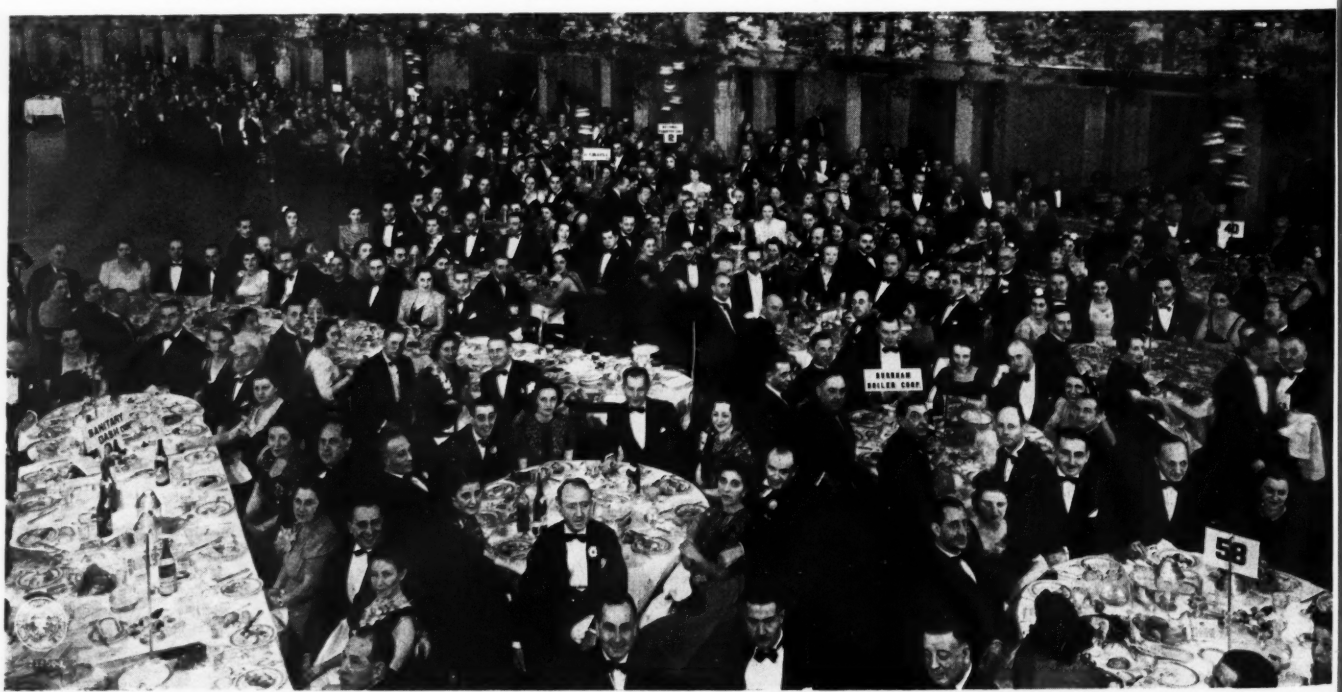
Fuel Oil

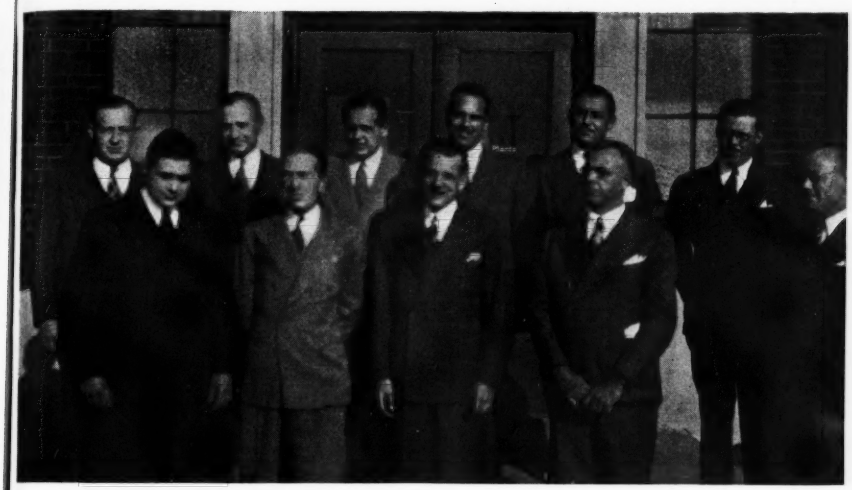
Gallonage of fuel oil produced last year increased to 19,983,006,278 gals. from a 1937 total of 19,243,713,721 gals., according to a preliminary report on the petroleum refining industry's operations as recorded in the Census of Manufacturers for 1939, U. S. Department of Commerce.

Ammonia A. C.

"Equipment Standards," a brochure covering the performance of ammonia condensers of the vertical open shell-and-tube type and the horizontal closed shell-and-tube type, has been issued by Air Conditioning and Refrigerating Machinery Assn., Inc., Southern Bldg., Washington, D. C.

Portion of the crowd attending the annual-dinner dance of Jobbers' Credit Assn. of New York, held November 16





Sales representatives of the Appliance Division of the Rheem Mfg. Co., at recent Chicago meeting: front row—Kenneth G. Sims; F. A. Riley; R. E. James; all of Chicago. John J. Miravalle, St. Louis, and G. A. McGaughey, Los Angeles. Back row: Howard Angell, Richmond, Calif.; Earl D. Freas, Philadelphia; Carlton A. Johanson, Chicago; W. W. Stevens, and H. A. Craig, both of New York City, and Frank J. Nugent, Houston, Texas

Rheem Meeting

The Appliance Division of the Rheem Manufacturing Company held its annual sales meeting at the Blackstone Hotel, Chicago, recently. The meeting was presided over by R. E. James, general manager of the Appliance Division, who outlined a comprehensive jobber sales program for the coming year. New merchandise for 1941 was displayed and many outstanding features were introduced to the sales organization.

Appointments

Research Products Corp., Madison, Wis., has reported the appointment of Sullivan Valve and Engineering Co., Butte, as Montana representative for air filters.

Joseph W. Robinson, president, **The Burkay Company,** Toledo, has announced the appointment of H. S. Boyle as vice president in charge of sales and advertising.

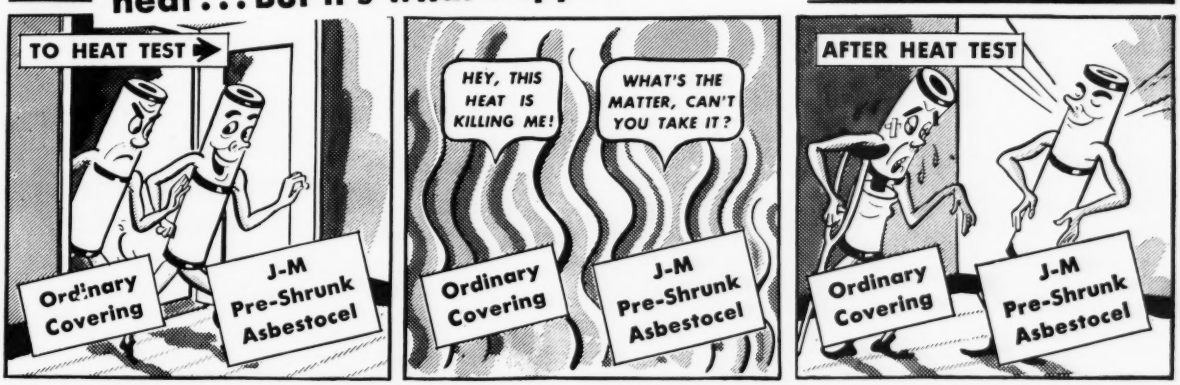
His appointment is stated to be in keeping with the general expansion policy of the company.

Walter G. Groth, vice president, will continue his activities with the company, as sales manager of the eastern division. The Burkay Pacific Co., Los Angeles, under the direction of Walter E. Campbell, will serve dealers west of the Rockies. The Burkay Sales Co., New York City—under the direction of Sam Sperans—will represent the company in the metropolitan area of that city.

Anderson Products, Inc., Cambridge, Mass., has announced the appointment of the following representatives; H. K. Wilson, St. Petersburg, Florida representative; Leon S. Lyon, Portland, representative for the state of Oregon and southern section of the state of Washington; Heating Assurance, Inc., Spokane, for eastern Washington and western Idaho, and F. L. Boigegrain, Chicago, for that city and adjacent territory.

YOUR JOHNS-MANVILLE DISTRIBUTOR SAYS:

"Pipe coverings may look alike BEFORE you turn on the heat... But it's what happens AFTERWARD that counts"



Protect your customers against pipe covering that shrinks and loses its shape by using J-M Asbestocel. This asbestos material is pre-shrunk. It enables you to do better work and eliminates no-profit calls to fix objectionable shrinkage gaps that develop with coverings that are not pre-shrunk.

Send for a copy of the latest J-M catalog and the name of the nearest J-M Wholesale Distributor (there is one near you). Write Johns-Manville, 22 East 40th Street, New York, N. Y.

JOHNS-MANVILLE INSULATIONS FOR PLUMBING AND HEATING SYSTEMS

Personals

Porcelain Steels, Inc., Cleveland, has announced the appointment of **Walter S. Gaines** to the position of plant manager. Mr. Gaines was formerly connected with the Cleveland Tractor Co., The National Carbon Co., and The Glascote Co., and has had many years experience in plant production.

The Josam Manufacturing Co., Cleveland, has announced the appointment of **M. R. McLaughlin** to the main sales department.

B. E. Horne, president, Watts Regulator Co., Lawrence, Mass. is completing a national tour of his company's sales outlets in every section. He reports the observation that business has been very good in every area.

Stopping off for hunting trips, Mr. Horne bagged an antelope and an elk in Wyoming, and a mountain goat in Idaho.

Paul W. Kerr, president of the Henry Weis Mfg. Co., Elkhart, Ind., has approved the appointment of **Carl L. Buchanan** as sales promotion manager.

Mr. Buchanan has been engaged in sales promotion for many years, having been sales promotion manager for the Associated Gas and Electric Systems and for Rural Surveys, Inc., both of Ithaca.

C. L. Buchanan

Business Briefs

The executive office of **Hoffman Specialty Company** has been moved to 77 Bedford St., Stamford, Conn. The general sales office is also located at that address.

The American Rolling Mill Company, Middletown, Ohio, has announced the promotion of J. A. Ingwersen as manager of the sheet and strip sales division, and F. E. Wortley as manager of midwestern sales, succeeding Mr. Ingwersen. Both men have had long and successful careers in sales work.

The Perfex Corp., Milwaukee, has announced the removal of its New York office from 90 West St. to 370 Lexington Ave.

The San Diego Pipe and Supply Co., a wholesale plumbing supply firm, has been organized in San Diego, representing many leading manufacturers. Arnold Rodieck is general manager, and George Wixen is office manager.

The announcement appearing in the October issue concerning the new addition to the plant of **Ferro Enamel Corporation,** Cleveland, did not specify that the addition would be a part of the company's color factory. Colors for use in porcelain enamel, pottery glazes, glass, etc., are produced in this plant. The addition will double present floor space and more than double the output of the color plant.

M. Meyerowitz & Son, Inc. of Flushing, L. I., plumbing and heating wholesalers, has consolidated the Myrtle Ave., Glendale, L. I. branch with the main office and warehouse at 188-07 Northern Blvd., Flushing.

Sell A COMPLETE LINE OF PROVEN WATER SOFTENERS

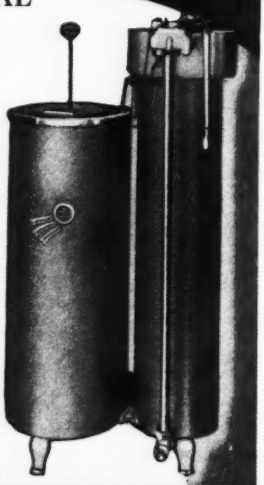
Write for SENSATIONAL *New* SOFTENER DEMONSTRATION PLAN!

Add to your WINTER PROFITS by demonstrating a full size softener in the home—conveniently and without installation cost.

DOMESTIC SOFTENERS in 4 STYLES—40 SIZES

also

COMMERCIAL SOFTENERS—IRON KLARIFIERS — ACID NEUTRALIZERS—PUMPS—WATER SYSTEMS —WATER COOLERS— DOMESTIC AND COMMERCIAL REFRIGERATION.



UNIFLOW MFG. COMPANY · ERIE, PA.

Key-Tite Offers LEAKPROOF JOINTS FOR THE LOWEST COST

This Waterproof Sealing Compound for Thread and Gasket Connections Is Economical to Use

Key-Tite, a waterproof sealing compound for thread and gasket connections, contains no lead nor lead substitutes. It is economical to use because it requires much less Key-Tite per joint than other types of sealers—a little goes a long way.

Key-Tite stops leaks the first time. It will not freeze the joint and always retains its full body and plastic qualities . . . does not settle in the can. It does not affect the color, taste or odor of potable liquids and may be freely used on lines carrying these.

FREE SAMPLE CAN. Test Key-Tite in actual service. Write for a liberal sample can of Key-Tite today — or order in quantity from your distributor.

KEY COMPANY

2661 McCasland Avenue East St. Louis, Ill.

Business

Summary

● "The election is over—let's get to work!" apparently has become the slogan adopted by business in general. And . . . with the national defense program going ahead at an accelerated pace . . . with building construction reaching new highs and the prospect of still higher levels to be reached . . . with income flowing into consumers' hands at the best rate since 1930 . . . with employment definitely on the uptrend . . . with price trends upward . . . with increased confidence among buyers—all of these facts form a picture of broadening prosperity. The future business outlook appears particularly bright.

● For the plumbing and heating industry, which is so closely connected with the above encouraging factors, all indications point to the fact that the prophecies for an excellent plumbing and heating year, which were made early in 1940, will be fulfilled.

● Reports from key wholesalers in all sections of the country show an average gain of 14.14 per cent in September of 1940 as compared with October 1939. For the first ten month period of 1940 these same wholesalers reported an average gain of 14.92 per cent over the like period of 1939. Thirty-two of these wholesalers expect business in November to be better, 32 expect it to be about the same as that of last year, six expect it to be worse, and fifteen made no comment.

● Of thirty-six lines of trade reporting to the Department of Commerce, thirteen showed that wholesaler sales during September exceeded those in the previous year, while 23 reported a decrease.

● Four trades showed gains of over 10 per cent compared with a year ago—plumbing and heating supplies being one of the four, with a gain of 13.0 per cent. previous year.

● Shipments of class 1, 2 and 3 stokers continued in the lead in the percentage of gain for the first nine months of 1940 over the like period of 1939—107,-138 having been shipped in 1940 as compared with 70,130 in 1939—or, an increase of 52.77 per cent. Likewise, oil burner shipments, although not showing as sizable a gain as stokers, continue to show considerable increases over the previous year.

● Notably, for the first time this year, monthly shipments of range boilers showed a decrease as compared with the previous year; however, figures for

(Continued to Column 3)

Prices Up

● *Nationwide reports indicate defense projects are increasing business*

This month, representative plumbing and heating wholesalers had this to say regarding present conditions and future prospects:

Massachusetts: "Present bookings make it appear November will be better."

New Jersey: "Prospects for November appear brighter because of the government building program."

New York: "Prices of copper bearing products increased 10%"—"Our prices are much better than last year and the small decrease in business does not affect our profits"—"General uptrend in business conditions"—"New York is quiet on private work. Government projects are not being brought here"—"Brass pipe and all copper items up."

Pennsylvania: "More building—better industrial business."

Maryland: "Business in November should be better than that of last year due to Government spending."

Virginia: "More building in this section."

Ohio: Unexpected heating orders for steam and hot water systems being received"—"Increased local industrial activity."

California: "Five per cent increase on trade prices of fixtures, 20 per cent increase on Soil Pipe and fittings, and 12½ per cent on steel pipe—the increases on plumbing materials means that price cutting is not as severe as it has been. Plumbing fixtures are selling at about 6 per cent gross profit."

Summary

(Continued from Column 1)

the first nine months are still ahead of the same period of last year. On the other hand, steel boiler shipments during the month of September increased over September 1939—this being the first month of this year that an increase has been recorded for steel boiler shipments.

(Turn to Next Page)

Key Wholesalers

	% of change October, 1940 Compared to October, 1939	% of change 1st 10 Mos., 1940 Compared to 1st 10 Mos., 1939	Prospects for November, 1940 as compared to November, 1939, appear: Better	Same	Worse	No Comment	Total Reports
New England	+8.16	+7.11	4	2	1	1	8
Middle Atlantic	+8.93	+19.01	9	13	2	6	30
South Atlantic	+26.01	+9.96	5	1	..	1	7
East North Central	+24.20	+22.38	11	7	1	5	24
East South Central	.....	.....	..	..	..	..	..
West North Central	+3.57	+5.46	1	6	1	1	9
West South Central	+41.70	+5.80	..	1	..	..	1
Mountain	—4.00	—6.00	..	1	..	..	1
Pacific	+36.23	+12.67	2	1	1	1	5
United States	+14.14	+14.92	32	32	6	15	85

Current Market Data Service*

Plumbing and Heating Wholesaler Sales (Average percent of change over 1939 business)	Sept., 1940 10.64%	Oct., 1940 14.14%
Plumbing and Heating Wholesaler Stocks (Average inventory at cost reported by 79 firms to the Department of Commerce)	Aug., 1940 $56,109	Sept., 1940 $54,603
Wholesale Prices: Bureau of Labor Statistics—1926 = 100	July, 1940	Aug., 1940
Plumbing and Heating	80.5	80.5
Building Materials	92.7	93.5

*This table summarizes the data required to bring up-to-date the charts contained in the "Plumbing and Heating Market Possibilities by States." For further information regarding this service, write to Marketing and Research Bureau, 1900 Prairie Avenue, Chicago, Ill.

Summary

(Continued from Page 65)

● With the expanding defense requirements continuing to call for new heavy construction and the rising income of the American people stimulating residential building, the building outlook for the remainder of the year is excellent.

● Contract awards for both residential and nonresidential buildings during the first nine months of 1940 were 15 per cent above those in the same months of 1939. On the basis of third-quarter operations, it is more than likely that the increase in private contracts during the whole of 1940 will run 20 per cent above those of last year. The value of building permits for new residential construction in the first nine months of this year was more than 15 per cent ahead of the same period of last year.

● Generally improved business conditions throughout the nation are responsible for this increase in construction work, and the continuous rise in private residential building has reached levels that will help support general business activity for months to come, according to the Department of Labor.

Shipments of Plumbing and Heating Equipment

	September, 1940	September, 1939	Total 9 Mos., 1940	Pct. of change 1st 9 Mos., 1940 over 1st 9 Mos., 1939
Mechanical Stokers				
Classes 1, 2 and 3 for domestic, apartment and small commercial use....	30,951	20,161	107,138	+52.77
Oil Burners				
Number of Units	41,490	35,352	182,918	+24.45
Range Boilers				
Number of Units.....	69,017	88,584	614,871	+ 6.09
Steel Boilers				
Number of Units.....	1,557	1,557	1,380	—16.93
Domestic Water Systems				
Number of Units.....	18,657	18,452	171,005	+ 4.71

Note: Figures on shipments of Cast Iron Boilers and Radiation for the month of September are not as yet available.

Southern Wholesalers

(Continued from Page 35)

heating industries to supply the needs of the national defense. I believe it is doing a good job of planning and coordinating.

"Everyone in the Government is fully aware of the importance of plumbing and heating—sanitation and adequate warmth—to national defense. The lessons of the Spanish-American War, when disease took more men than bullets, have not been forgotten. The fact that health problems are a vital part of national defense is generally appreciated by the civilian population, too.

"The vast construction program necessary for national defense should not be permitted to upset private building.

"Most of the construction required for defense purposes will be completed in eight months or one year. In addition to the work already let or about to be contracted for there was an additional number of defense housing and cantonment projects which were to be contracted for next spring or summer. These additional projects will now be speeded up and all work will be let as quickly as possible so there will be an additional demand right now accelerating up to March 1. *We must not let emergency construction disrupt the normal construction program of private industry. We must try to maintain the gains the building industry has made in the last five years.*

"I do not expect that price increases will be so severe as to choke off private constructions. The building industry has a productive capacity way beyond present requirements.

"There may be some industries in which the Government may have to apply priorities, but I trust it will not be necessary in the plumbing and heating industries or in the construction industry generally.

"None of us should intimate that there will be any shortage of materials but you can readily see the wisdom of ample stocks, because delivery will be more important than price."

Big Advance Orders

The industries and the commodity markets have had another busy month in October, according to The National City Bank of New York.

"For the most part manufacturers have continued to sell more than they are shipping, and their unfilled orders have piled up further. The tendency of buying to spread around the circle has been demonstrated again. Manufacturers can see a high rate of operations ahead for some time. When they sell for future delivery at fixed prices it is only prudent to cover future needs for materials.

"They are concerned lest their source of supply get tied up with Government orders, which has already happened in certain cases. They hear talk of possible priorities in some lines, or of inflation. They are no longer fearful of an early British defeat or a slump in exports of steel and other war supplies. For all of these reasons, they have lengthened their commitments for materials, usually into the first quarter of 1941 or later; and prices of these materials have been strong."

Small Business

Washington, D. C.—A Director of Small Business Activities, in the person of Donald M. Nelson, has been named by the National Defense Advisory Commission to deal with problems and interests of smaller business establishments in relation to the defense program. In making this announcement, the Defense Commission mentioned its "established policy" which holds that "smaller business occupies a place of vital importance in the defense program."

It was announced that the Office of the Director of Small Business Activities will serve as a clearing house of information for smaller enterprises, keeping them advised of War and Navy Department requirements they may be qualified to fill. The new director will lend his assistance in facilitating financing required by smaller business to effectuate defense contracts. He will cooperate with local commercial banks in this connection and will assist in establishing contacts with Federal Reserve Banks and the RFC.

Installment Sales

Washington, D. C.—Plumbing, heating and air conditioning firms who hold installment paper in the case of persons who may enter the military service, face a moratorium on payment of those obligations during the period the buyer is in uniform, under the provisions of a bill passed by Congress and regarded as certain to receive the President's approval.

Dealing entirely with debt moratoriums, the bill got through Congress with very little publicity, largely accounted for by the fact that it was buried under the title of the "Soldiers' and Sailors' Civil Relief Act of 1940." Washington observers regard the measure as unique in that it had no particular pressure group behind it but was brought about by the impact of public opinion.

The bill affects only those installment contracts entered into before the effective date of the Act, which is the date on which it is signed by the President. The release from payment of installment obligations covers the period of the buyer's military service. The Act remains in force until May 15, 1945.

(Continued on Page 69)

No. 1A Vari-Vent

No. 1B Vari-Vent (Straight Shank)

No. 1C Quick-Vent Float Valve

No. 3 Air Valve

No. 3A B & C Air Valves (Straight Shank)

No. 1933 Air Valve (Straight Shank)

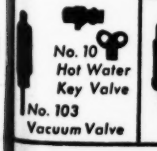
No 1933 Angle Air Valve

No. 4 Quick-Vent Valve

No. 5 Quick-Vent Valve

No. 28 Vacuum Valve

No. 28 Vari-Vent Valve


No. 10 Hot Water Key Valve

No. 103 Vacuum Valve

YOU WIN

with the ALL-STAR LINE

● Victory in your business means more than just the sale. Think of all the engineering time that goes into your heating system layout . . . AND REALIZE that the whole purpose of it is *defeated* unless the engineering of the air and vacuum valves on the job is just as experienced, skillful and precise.

Perhaps you can recall, not without pain, a job on which you made the profit and then used it up in "call-backs." That's what good engineering, including ALL the equipment, will prevent. That's what the Dole Line is here to help you eliminate.

There is a valve in this complete line for every venting function—and it is called an ALL-STAR LINE because each valve is a star performer in its particular position.

Because *appearance* is important to merchandise both in your store and after installation Dole Valves are also attractively finished and packaged—a real asset when it comes to retailing valves for replacement.

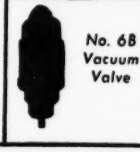
So, YOU WIN from every angle: Dole Valves perform with engineered precision, appeal to the buyer, and yield you a good profit margin, which is yours to keep. That's a *complete victory!*

Dole No. 1A Vari-Vent Air Valve

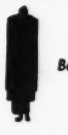
is particularly suited to the quick venting needs of automatically fired heating installations. It balances the flow of steam to radiators of oil, gas, or stoker fired systems at the first "breath" of boiler pressure. Provides any venting speed between wide open and virtually closed. Other air and vacuum types in this complete line are just as carefully adapted to other types of systems, on radiators, mains and convectors.

DOLE AIR and VACUUM VALVES

THE DOLE VALVE COMPANY
2001-41 CARROLL AVENUE, CHICAGO, ILLINOIS
Offices and Representatives in all Principal Cities


No. 68 Vacuum Valve

No. 2 Vacuum Valve


Dole Balancer

No. 14 Key Valve

No. 7 Signal Air Valve

No. 1933 Vari-Vent Valve

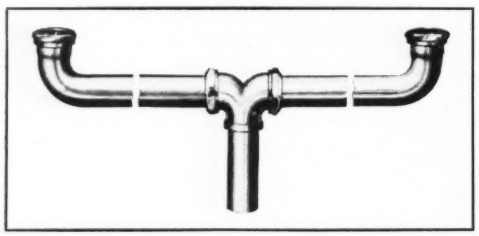
Dole Vent Lock

Compound Pressure and Vacuum Gauge

THE BEST "DEFENSE PROGRAM" FOR *Your Profits*

QUALITY PLUMBING THAT DOES A JOB

Your business needs a daily Defense Program to protect your profits. And that means Quality products that keep on satisfying when the going is long and rough. SCOVILL makes no other kind—sells through Qualified Wholesalers only—and guarantees that these policies will be maintained.

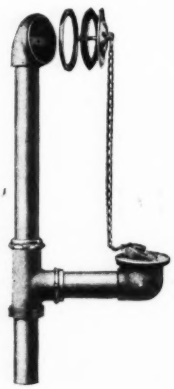


A STAND-OUT FOR SERVICE

J-410 is a Continuous Wash Tray Combination for double compartment sinks. Made for 25″ centers. Cast twin elbow. Two 1½″ O.D. elbow waste tubes. *It won't go sour in service,* because it's made to make that statement stick.

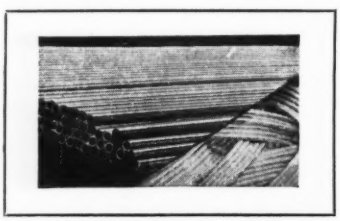
NO "TIME-OUT" FOR 2602-2

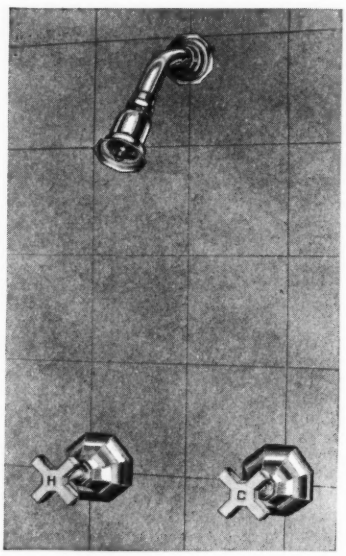
Once installed this adjustable Waste and Overflow stays on the job. 1⅜″ cast brass male tee threaded 1½″ I.P.S. 1⅜″ O.D. tailpiece. Also reamed for 1½″ O.D. tailpiece. Cast brass elbows. 2602-2 has what it takes.



PLUMBING GOODS WITH GUTS

That applies to all SCOVILL stuff—and to its brass pipe and copper tubing in particular. We don't just *say* so, we *prove* it before we ship it (80 pounds air pressure, 1000 pounds water pressure). Our brass pipe takes a thread fast and clean. Our copper tubing comes in types K, L, M —hard temper in lengths, soft temper in coils. Say SCOVILL when you buy —you'll not be sorry.





J-1222-7 GIVES 'EM WHAT THEY WANT

This shower number has what your customers want. Eye appeal. Quality construction throughout. Fair price. And economy of operation (J-1222-7 has the Scovill No. 1466 shower head that uses 30% less water and cuts water heating bills). ½″ valves on 8″ centers. Union couplings. Removable valve seats. Ball joint shower head with removable face. It's a honey throughout.

SCOVILL

SCOVILL MANUFACTURING COMPANY
WATERVILLE DIVISION
WATERVILLE, CONN.

SCOVILL *Masters of Metal*

Jobs to Be Let

(Continued from Page 31)

Center, Leon, Iowa..... 250; Army
Fort Riley,
Fort Riley, Kansas..... 125; Army
Fort Knox,
Fort Knox, 600; Army
Fort Knox, Kentucky..... 100; Civilian
Municipal Airport,
Bangor, Maine..... 150; Army
Aberdeen Proving Ground,
Aberdeen, Md..... 500; Civilian
Expanded Ordnance development
Holabird QM Depot,
Baltimore, Md..... 86; Army
Edgewood Arsenal,
Edgewood, Md..... 500; Army
Expanded manufacturing program
Fort George G. Meade,
Odenton, Maryland..... 115; Army
Fort Devens,
Fort Devens, Mass..... 300; Army
Westover Field,
Chicopee, Mass..... 200; Army
Fort Custer,
Battle Creek, Mich..... 250; Army
Selfridge Field,
Mt. Clemens, Mich..... 130; Army
Municipal Airport,
Jackson, Miss..... 50; Army
Fort Dix,
Fort Dix, N. J..... 100; Army
Fort Monmouth, 50; Army
Long Branch, N. J..... 475; Civilian
Municipal Airport,
Albuquerque, N. Mex..... 100; Army
Fort H. G. Wright,
Fishers Is. Village, N. Y... 20; Army
Mitchel Field,
Hempstead, L. I., N. Y..... 200; Army
Fort Bragg,
Fayetteville, N. C..... 550; Army
Fort Sill,
Fort Sill, Oka..... 150; Army
Fort Jackson,
Columbia, S. C..... 200; Army
Fort Meade,
Fort Meade, S. Dak..... 50; Army
Fort Bliss,
El Paso, Tex..... 200; Army
Fort Clark,
Fort Clark, Tex..... 56; Army
Contract
Ellington Field,
Houston, Tex..... 200; Army
Advanced Flying School,
San Angelo, Tex..... 100; Army
Brooks & Kelly Fields,
Fort Sam Houston..... 200; Army
San Antonio, Tex..... 300; Army
Arlington Cantonment,
Arlington, Va..... 35; Army
Fort Eustis,
Lee Hall, Va..... 25; Army
Fort Story,
Virginia Beach, Va..... 50; Army
Langley Field,
Langley Field, Va..... 350; Army
Fort Monroe,
Phoebus, Va..... 90; Army
Fort Lewis,
Fort Lewis, Wash..... 225; Army
McChord Field,
South Tacoma, Wash..... 25; Civilian
Municipal Airport,
Spokane, Wash..... 150; Army
Fort Kamehameha, and
Hickam Field..... 200; Army
Island Oahu, Hawaii..... 250; Army
Henry Barracks, Cayey.... 300; Army
Fort Buchanan, San Juan. 30; Army
Borinquen Field, Aguadilla. 200; Army
Puerto Rico.

Women

Conducted by Dorothy Edwards

Turkey-Whist

The annual turkey-whist party of the Woman's Auxiliary to the Master Plumbers' Assn. of Alameda and Contra Costa Counties (Calif.) was held at Firmin Hall, Oakland, November 11. Mrs. L. J. Jackson of Berkeley was general chairman with Mrs. N. J. Previati in charge of the refreshments.

The purpose of this annual party was to raise funds for Christmas baskets and donations for needy families. Master plumbers, their families and friends were invited, and a total of fifteen tables of whist players were present.

Mrs. E. Y. Arnold

Mrs. E. Y. Arnold, of St. Paul, wife of E. Y. Arnold, secretary of the Minnesota State Assn. of Master Plumbers, was killed during the recent high storms in Minnesota when the car in which she was riding was blown into the path of an oncoming truck. Mrs. Arnold was long a leader in state and local auxiliary chapters.

S. F. Luncheon

The November 7 function of the Women's Auxiliary to the San Francisco Master Plumbers Assn., held at the Hotel Whitcomb, was marked by a luncheon and an afternoon of bridge, with Mrs. Frank Hellwig as hostess for the day. High scores at the bridge game were held by Mrs. William Lubliner and Mrs. George Young.

Plans were discussed for the December meeting and Christmas party, with Mrs. John D. Farley and Mrs. Nick Crowley in charge of preparations.

Installment Sales

(Continued from Page 66)

unless we are engaged in war at that time, in which event, it remains in effect for six months after the President proclaims a treaty of peace has been signed.

Implications of the measure for the holder of installment paper are not limited to the Federal Act. There is a very strong possibility, in the opinion of legislative experts, that the bill will be implemented by state laws.

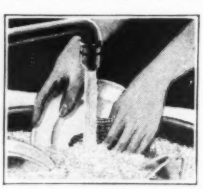
The exact prohibition of the bill for the installment paper holder is that he may not take steps to rescind or terminate the contract or resume possession of the property for non-payment of any installment falling due during the period of the purchaser's military service, excepting by court action.

Members of Women's Auxiliary to the San Francisco Master Plumbers Assn. at recent luncheon-bridge meeting

The Softflo Spout End makes it easy to sell Chicago Sink Faucets

Because the Softflo Spout End endows Chicago Swinging-Spout Sink Faucets with unusual service features, features that are tremendously desirable, these faucets appeal at once to the average buyer. They eliminate all splashing. They provide more suds from soap flakes or chips. They neutralize odors such as chlorine. When you explain or demonstrate these extra functions as supplementing the quality and durability of Chicago Faucets, sales are easily made. It is well to always have Chicago Sink Faucets in stock. Your wholesaler can supply them.

NO SPLASH



MORE SUDS

The Softflo Faucet Spout End is now available as a separate fitting for Chicago Sink Faucets not previously Softflo equipped.

THE CHICAGO FAUCET CO.
2712 N. Crawford Ave., Chicago

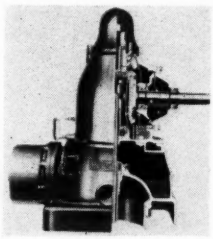
CHICAGO FAUCETS

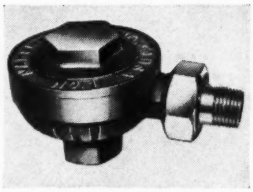
Last as long as the Building

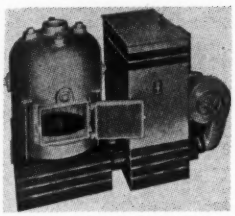
Products for Dealers

Stoker Hot Water

Plenty of hot water for all household, commercial and industrial purposes can be produced by this stoker-fired water heater, states the manufacturer. The stoker used in this particular model is an anthracite model of the company's line of stokers. The heating boiler is of heavy cast iron with the surfaces surrounding the combustion chamber corrugated to increase the area exposed to the fire and thus accomplish quick heating. The hot water control, located on the storage tank, is the major control and starts and stops the stoker in accordance with requirements. Schwitzer-Cummins Co., Indianapolis, announces the unit.







Above, Pump Head ". . . take-off shaft designed to carry increased load." Above right, Therm. Steam Trap ". . . positive in action and dependable in performance." Right, Stoker Hot Water ". . . plenty of hot water for all purposes"

Therm. Steam Trap

This recently announced thermostatic steam trap is furnished with an adjustable and renewable stainless steel seat with a renewable and stainless steel seat in the body. The unit is described by the manufacturer as being positive in action and dependable in performance and it is made of the finest grade material, it is reported. The company also manufactures replaceable and thermostatic diaphragms for most makes of traps. Tamper-proof setting of the adjustable diaphragm is announced as an important feature. March Co., Inc., 2435 N. Western Ave., Chicago, announces the unit.

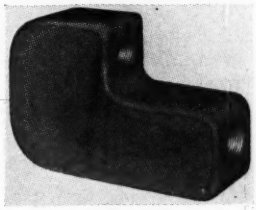
Pump Head

Improvements in the design of geared heads for deep well turbine pumps have been announced recently. A change in bearing application and a redesign of the take-off shaft allows the latter to carry increased loads, it is reported. To prevent leakage of oil from the outer bearing on the take-off shaft, an oil seal is placed on the end of the bearing housing. The seal is equipped with an annular garter spring and the treated leather element is oil resistant. The head assembly is streamlined and the gearing is completely housed for protection

against the elements. Peerless Pump Company, 301 West Ave., 26, Los Angeles, announces the improvements.

Cabinet Showers

The illustration shows a complete cabinet shower bath designed to be incorporated into the recessed structural walls of the bathroom. Sound-proof sidewalls and a top-ceiling unit with special shower light are reported to be unique features of these units. Cabinet walls and the receptor are provided with the entrance adapter to accommodate a front facing of any type bathroom wall surface material. Henry Weis Manufacturing Co., Inc., Elkhart, Ind.



Above, Auxiliary Heater ". . . ideal for hard water use." Right, Cabinet Showers ". . . sound proof side-walls and special shower light"

Auxiliary Heater

Shown in the illustration is an instantaneous auxiliary water heater which was announced recently. It is reported by the manufacturer to be ideal for hard water

N-DUR-O's *Extra* SERVICE MEANS *Extra* SATISFACTION

N-DUR-O Faucet Washers are packed in this transparent plastic "see-thru" container.

50 pieces to container. Attractive . . . practical . . . container has many re-use applications.

CUSTOMERS appreciate the longer service rendered by LAVELLE'S new N-DUR-O Faucet Washers . . . plumbers benefit from this greater satisfaction. The special NEOPRENE compound, from which N-DUR-O Faucet Washers are made, equals the strength, resiliency and toughness of natural rubber with greater resistance against heat, oil and age. Subjected to the ravages of scalding hot water and continued rotative abrasion, N-DUR-O Faucet Washers stand up 3 to 4 times longer. The N-DUR-O Faucet Washer is one more contribution toward helping the plumber build public confidence with better products. Ask your wholesaler for free test samples of N-DUR-O Faucet Washers.

Lavelle Rubber Co.

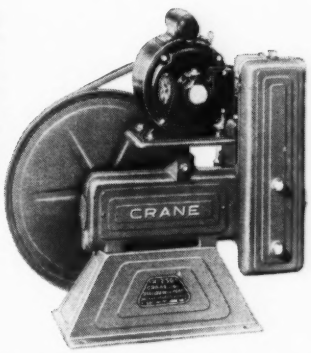
424 N. WOOD ST. CHICAGO, ILLINOIS

3 ways to BIGGER SALES BIGGER PROFITS

IF YOU want more plumbing sales—look to the farm market. If you are interested in the farm market—the first step to a plumbing order is the sale of a pump.

A Crane pump will help open the door to a plumbing sale—bring you a worthwhile profit as well.

K-250, K-375 Shallow Well Pumps for 250-375 gallon per hour capacity. For pressures up to 40 lb. Here is a pump ideal for use where the water supply is a shallow well, pond, lake, cistern or river. Sturdy, simple and economical, "K" series pumps assure years of efficient service.



Crane Deep Well Pumps are of compact and simple design and sturdy construction, which mean years of service with a minimum of maintenance. Herringbone gears and load balancing cylinder are Crane features. May be furnished for operation with electrical or gasoline power. Available in capacities up to 1,000 g.p.h. with motor sizes ranging from 1/3 to 3 h.p.

Crane Jet Pump—for intermediate and deep well requirements. Compact, efficient with no moving parts below ground. Can be installed away from the well. Available for 2-in. well casings; as shallow well centrifugal pumps and for booster service. Crane Jet Pumps are made in four sizes with capacities up to 1500 g.p.h.

1940 OUR 85th YEAR

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

for

DEPENDABILITY

SMOOTH INSTALLATION

YEAR-'ROUND SATISFACTION

SCAIFE

RANGE BOILERS

SCAIFE Boilers satisfy everyone concerned with range boiler performance because they're *master-built* to do so! Honest materials, expert craftsmanship, rigid testing and careful inspection assure the *dependability* that makes steady business for the wholesaler—*ease of installation* master plumbers appreciate—*trouble-free long life* that gratifies each customer. SCAIFE wins the combination . . . play safe with Scaife on every range boiler specification!

FOUNDED SCAIFE 1802

WM. B. SCAIFE & SONS CO.

General Offices, Laboratory and Works—OAKMONT, PA. (Pittsburgh District)

Representatives in Principal Cities

use because of its easy cleaning and large heating capacity. Lime and sediment may deposit many years, it is pointed out, before impairing to any great degree the heating capacity of the unit. The heater is streamlined to aid circulation properly and there are no steam traps or hot water pockets. The capacity of the unit is sufficiently large to heat water for a forty gallon tank, it is reported. Koil King Co., Lafayette, Ind., announces the heater.

Flexible vent pipe ". . . joined together in such a manner as to render the connected pieces leak-proof"

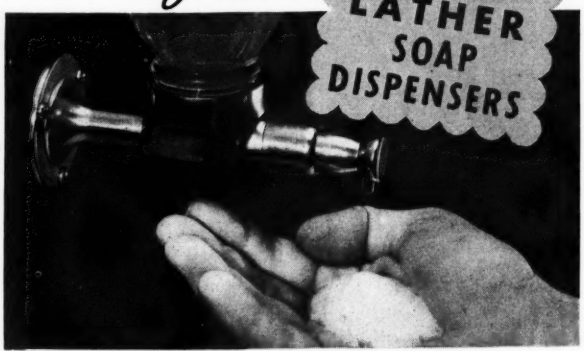
Flexible Vent Pipe

The purpose of this new flexible vent pipe is for lining brick and masonry flues where an off-set occurs. It consists of small sections of 24-gauge aluminum pipe joined together in such a manner as to render the connected pieces leak-proof at the joints and yet to allow enough play to insure the flexible section adapting itself to offsets up to and including 15 degrees. A vitrified asbestos jacket is provided to semi-insulate the aluminum and to prevent its coming in contact with the walls of the flue. The manufacturer of this pipe is Williams-Wallace Co., 160 Hooper St., San Francisco.

Diaphragm Gas Valve

This new development combines a diaphragm gas valve and a mechanical limit control into one easy-to-

NEW PROFITS from Watrous LATHER SOAP DISPENSERS



HERE ARE DISPENSERS THAT:

★ Deliver a rich, creamy lather
★ Save as much as 65% on soap
★ Give greater washing satisfaction

These new Watrous Lather Soap Dispensers and Valves give you new sales ammunition! They are described, together with the complete line of Watrous soap dispensing equipment, in Catalog No. 470 just off the press.

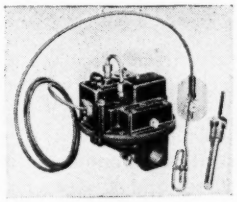
WRITE FOR YOUR COPY

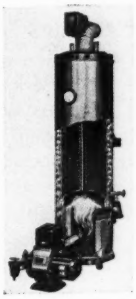
THE IMPERIAL BRASS MFG. CO.

1231 W. Harrison St., Chicago, Ill.

Watrous SOAP DISPENSERS

install, compact unit, reports the manufacturer. The built-in mechanical limit control is said to simplify installations. Complete safety is reported to be assured at all times because normal operation of the limit control is not affected by electric power failure or by normal opening of the valve. White-Rodgers Electric Co., St. Louis, announces the valve.





Above, Diaphragm Gas Valve ". . . complete safety assured at all times." Right, Water Heater ". . . combination safety and observation door is a feature"

O. B. Water Heater

A new water heater designated as Model B in the company's line can be sold, the manufacturer points out, on the basis of providing rustless hot water and also as a source of heat when connected with copper convector radiators or unit space heaters. An insulated, pre-cast refractory combustion chamber is ready for the installation of a pressure gun-type oil burner. It is available in 25 to 80 gal. storage units. The heater is announced by Gerstein & Cooper Co., 1-7 West Third St., South Boston, Mass.

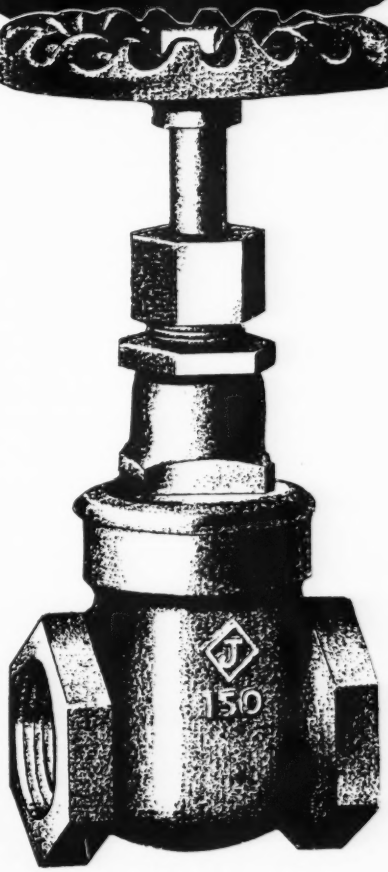
WHY

test every one?

What's the point of testing each individual Barnes & Jones Radiator Trap, under actual operating conditions, before it leaves the factory? Just this: to provide a *positive guarantee* that *every* Trap carrying the Barnes & Jones trademark will assure unfailing performance *on the job*. This prechecked and proven performance is just one of the many advantages of doing business with Barnes & Jones . . . Send today for new 12-page Barnes & Jones catalog.

BARNES & JONES, INCORPORATED
412 Brookside Ave. Boston, Mass.
For 35 years manufacturers of quality heating equipment

ACCURATE CLEAN CUT THREADS



They take hold quickly, draw up tightly and thus speed the job and avoid leaks. Long a feature of JARECKI VALVES AND FITTINGS. Distributors in principal cities. Jarecki Mfg. Co., Erie, Pa.

JARECKI
VALVES & FITTINGS

AN INVITATION

Why not issue an invitation to your prospects and customers to enjoy luxurious shower bathing with the new Mueller Self Cleaning Shower Head. It's "good-bye" to clogged and sputtery showers after you install the Mueller Shower Head. Just notice the construction that insures a full, free stream at all times. Those 28 Stainless Steel Pins are moved back and forth in the face of the head every time the handle is turned to regulate the stream from a stinging needle shower to a soft rain patter. No lime, alkali or corrosion can ever clog the Mueller Self Cleaning Shower Head.

Ask your jobber for full information.

MUELLER CO.
DECATUR, ILL.

VITAL SPOT PRODUCTS

New Information and Aids to Sales

Shower Mixers

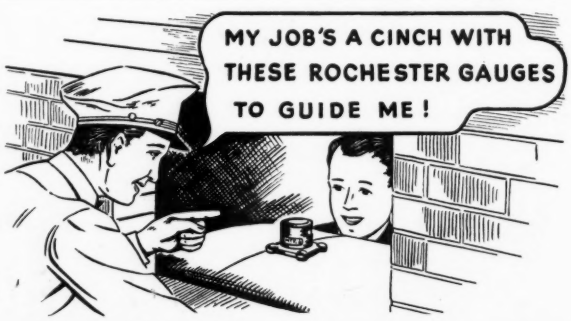
Two types of shower mixers are described in a catalog sheet for loose-leaf filing which was recently issued by Babbin Thermostatic Controls, Inc., 260 Canal Street, N. Y. City. One of the mixers is the exposed type, the second is concealed and finished in chromium. List prices of both types are presented and dimensioned drawings for roughing in are shown.

Hot Water Heat

The "Answer to Modern Home Heating" booklet has been issued by H. A. Thrush & Company, Peru, Ind. The story of this company's flow-control system is told by pointing out the advantages of circulator, flow control valves, pressure relief valve, pressure reducing valve and tank, water heater and controls. Nearly a full page is devoted to a description of each of these items and the importance of its place in the system is established.

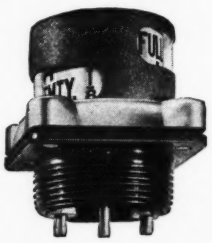
Oil Burners; Parts

Sid Harvey, Inc., Valley Stream, N. Y., has issued a 40-page booklet showing its complete line of fuel pumps, fuel units, transformers, with prices listed for all of



DOUBLE-DIAL permits accurate reading from outside or in the cellar

This feature is just one of the many reasons why oil burner dealers and owners alike prefer ROCHESTER Universal GAUGES. But in addition, they incorporate that famous Rochester Magnetic, *leak-proof* principle . . . a feature which assures accurate, dependable service and trouble-free operation. So for *complete* customer satisfaction—*specify* and install Rochester Universal Gauges. Over 400,000 installations back your choice!



Write Today *for complete information about these low-cost, easy-to-install Gauges.*

Rochester Gauges are Listed as Standard by Underwriters' Laboratories

ROCHESTER MFG. CO., INC.
19 Rockwood St. Rochester, N. Y.

Rochester OIL BURNER TANK GAUGES

these parts. Draft governors, safety devices for steam, hot water, and warm water heating plants, and furnace and boiler cleaners are also listed. Nozzles and valves are among other parts shown.

Humidifiers

Maid-O'-Mist, Inc., 209 N. Aberdeen St., Chicago, has issued a catalog covering the company's complete line of humidifiers, safety feeders, valves, air eliminators, etc. These are accompanied by listed prices. Throughout the book, the need for humidifying the atmosphere during the winter is stressed, dangers of dry air pointed out, and the advantages of this company's units well presented.

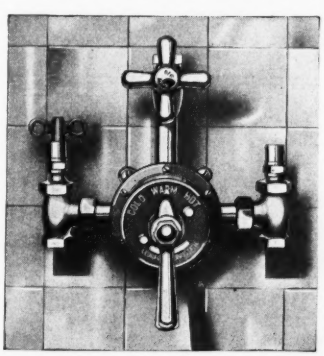
Combustion Chambers

Combustion chambers for any pressure burner in any boiler or furnace are illustrated and described in a recently issued 6-page folder. Other products described are a baffle for boosting heating efficiency and a refractory cement for bonding firebrick, for patching, and for wash coating. Hearth cement and furnace cement are also listed. Refractory and Insulation Corp., New York, announces the bulletin.

Condensate Recovery; Controls

Fred H. Schaub Engineering Co., 325 W. Huron St., Chicago, has issued a new catalog (No. 640) giving complete information on its line of boiler feed and condensate recovery systems and liquid level controls. Clear cutaway-pictures illustrate these systems, and installation data is given in drawing form. Specifications are listed according to working pressure.

SAFE—CONVENIENT THERMOSTATIC



SHOWER BATH CONTROL

The temperature you want—when you want it! No more haphazard blending of hot and cold water. No more hot shots and cold spots when pressures vary. Rid yourself of these annoyances. Install a Series R Valve on your shower, set the pointer at the temperature you desire and really enjoy your shower.

Distributed through recognized plumbing wholesalers.

Manufactured by

LEONARD VALVE COMPANY
1360 Elmwood Ave., Cranston, R. I.

HERE'S HOW to provide adequate protection

CADWELL SAFETY DEVICES

No. 45

CADWELL No. 45 is a unit for hot water heating systems. It guards boilers against pressures in excess of 30 lbs. Governed entirely by hydrostatic pressure, it has no springs, no sticking seats. A complete unit that saves installation time and fittings.

No. 25

CADWELL No. 25 is a *temperature* and pressure relief valve that *really* protects range boilers and storage tanks against explosion. It is diaphragm operated, self-closing and has only one valve seat which is governed entirely by internal pressure.

HERE'S HOW to dress up YOUR PIPING JOBS

No. 10

CADWELL PERFECTION FLOOR & CEILING PLATES

Smooth, attractive appearance, sturdily constructed, PERFECTION Floor and Ceiling Plates are a mark of beauty, a mark of dependability on piping jobs. The No. 10 illustrated has a concealed rivet construction and is reinforced where extra strength is needed.

HERE'S HOW step up to efficiency on STEAM HEATING JOBS

No. 10

This CADWELL No. 10 is a thermostatic type air valve. Furnished in both adjustable and non-adjustable types.

CADWELL AIR VALVES

All CADWELL Air Valves have white metal seats to prevent corrosion.

No. 50

This CADWELL No. 50 is an adjustable vacuum air valve.

Order CADWELL Products through your wholesaler

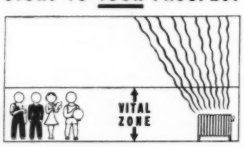
The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

PAY CHRISTMAS BILLS With Profits

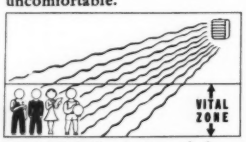
CASH IN WITH ILG'S NATIONAL DRIVE ON UNIT HEATERS

Turn on the heat! Get out and see your 'round the corner neighbors — stores, garages, schools, factories. Tell them about ILG's 8-way savings . . . about ILG's "Vital Zone" heating . . . about ILG's self-cooled miracle motor that "breathes" — never "slow roasted" by coil heat . . . about ILG's superior construction—quiet, long-lasting, no drips, no leaks! You'll close sales and make profits—profits which you can *keep* and *spend* (not dissipated on service calls). Get the complete story on ILG's powerful national campaign now — see your jobber or write us today!

TELL THIS SALES-MAKING STORY TO YOUR PROSPECT



LAZY RADIATED HEAT—(from obsolete radiators or pipe coils) rises to stagnate near ceiling, leaving "Vital Zone" cold and uncomfortable.



ILG "LIVE AIR"—is forced down into "Vital Zone", maintaining healthful, uniform temperature where people work, play and shop.

ILG ELECTRIC VENTILATING CO.

2872 N. CRAWFORD AVENUE

CHICAGO, ILLINOIS

ILG

Offices in 43 Principal Cities

UNIT HEATERS

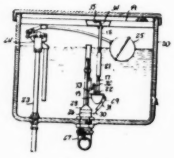
News of Patents

2,199,094. Cleansing and Deodorizing Device for Water Closets. Edward T. Ahern, New Haven, Conn.

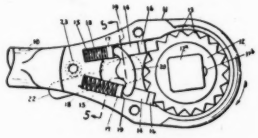
2,201,862. Pipe Coupling. Alex Heisterkamp, Hoboken, N. J.

2,198,693. Pipe Stock. David A. Alexander, Rochester, N. Y.

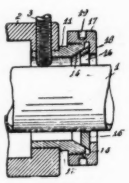
2,201,705. Ratchet Wrench. Arthur P. Stone, Akron, Ohio, assignor to The Wright Tool & Forge Company, Barberton, Ohio.



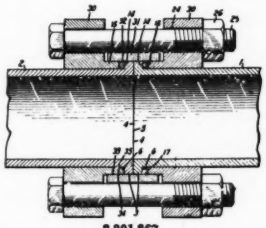
2,199,094
CLEANSING AND DEODORIZING DEVICE FOR WATER CLOSETS



2,201,705
RATCHET WRENCH



2,198,693
PIPE STOCK

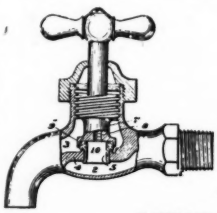


2,201,862
PIPE COUPLING

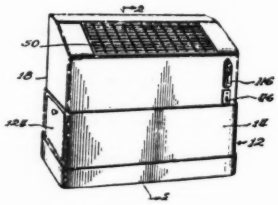
2,198,238. Valve Seat. Harry D. Adams, Boston, Mass., assignor by mesne assignments to Hadley-Hubbard Company, Boston, a corporation of Massachusetts.

2,198,890. Humidifier. Fred W. Stilwell, Chicago, Ill.

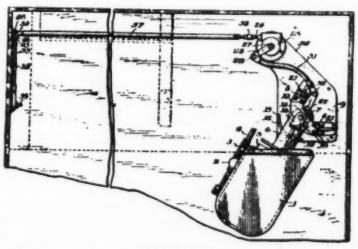
2,198,853. Actuating Mechanism for a Plumbing Fixture. Leif Andersen and Edward A. Fredrickson, Chicago, and Roy H. Zinkil, Oak Park, Ill.



2,198,238
VALVE SEAT



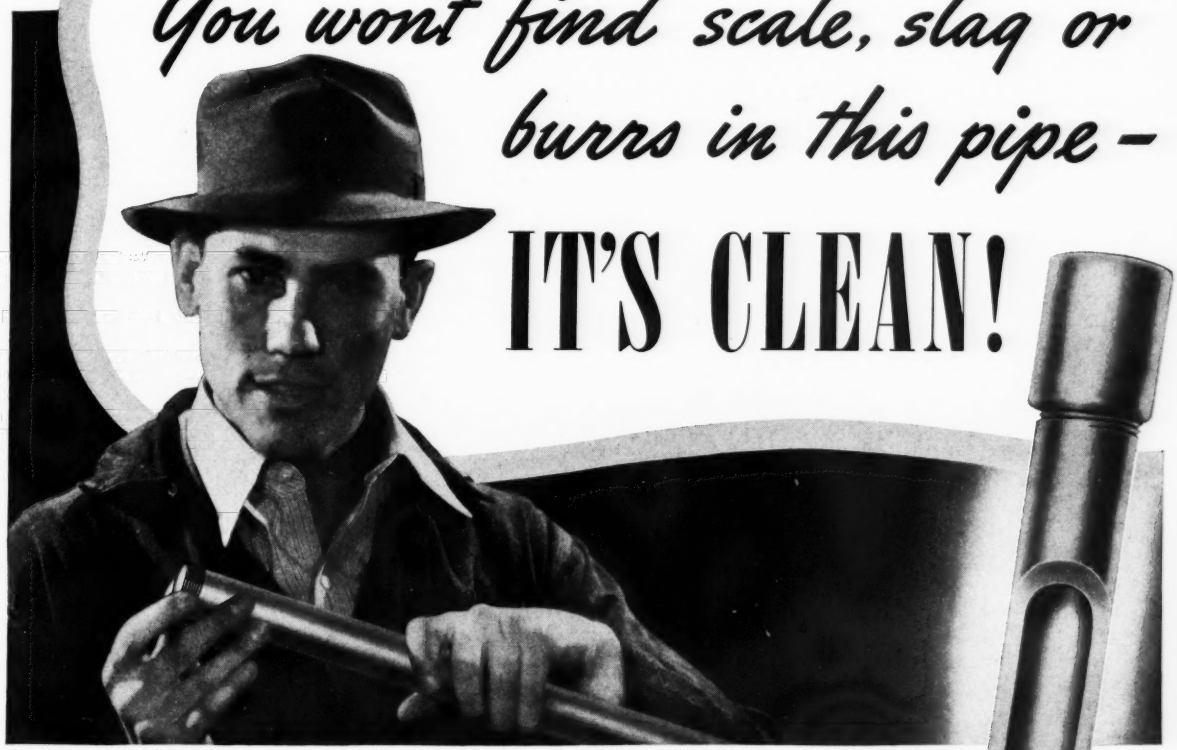
2,198,890
HUMIDIFIER



2,198,853
ACTUATING MECHANISM FOR A PLUMBING FIXTURE

You won't find scale, slag or burrs in this pipe –

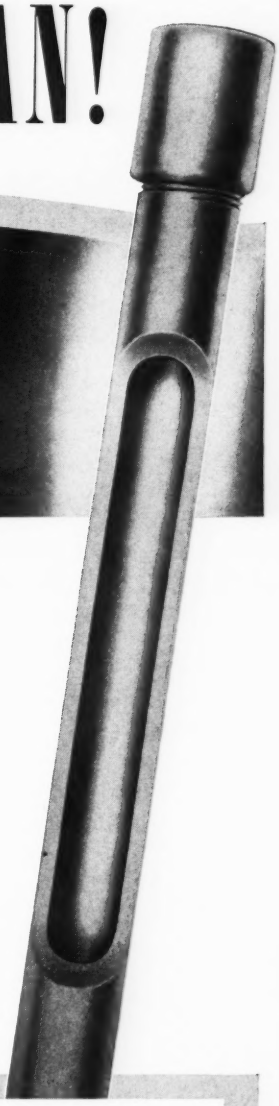
IT'S CLEAN!



● Try Fretz-Moon Pipe on your next piping job. Pick out any length or a dozen lengths and inspect closely. You'll find the inside surface as clean and smooth as the outside — free from scale, slag, dirt and burrs.

Why? Because Fretz-Moon Pipe is made by a CLEAN process of manufacture. During heating, the skelp has no chance to pick up foreign matter from the furnace bottom. After welding, scale is broken off by special rolls and thoroughly washed from the pipe. Galvanized pipe is blown clean by superheated steam.

You can use Fretz-Moon Pipe on any piping job — with assurance that it will provide full, clean flow and long, satisfactory service. TRY IT — and know the difference. If your distributor doesn't stock it, write — Fretz-Moon Tube Co., Inc., Butler, Pa.



FRETZ-MOON

the *Original* continuous weld pipe

To meet various conditions, Fretz-Moon Pipe is made in steel and copper-bearing steel—black and galvanized finishes—and in uniform lengths.

19th YEAR of SERVICE . . . **. . . TO THE INDUSTRY**

READY *for* 1941!

DOMESTIC ENGINEERING CATALOG DIRECTORY

. . . offers Buying and Specifying Information on:

- Plumbing
- Heating
- Water Systems
- Plumbers' Specials
- Heating Specialties
- Stokers, Oil Burners
- Air Conditioning
- Humidifying
- Refrigerating
- Insulating
- Compressors
- Fans, Blowers

The new 1941 edition of DOMESTIC ENGINEERING CATALOG DIRECTORY will be READY to fulfill the specific needs of the Buyers and Specifiers in the Industry.

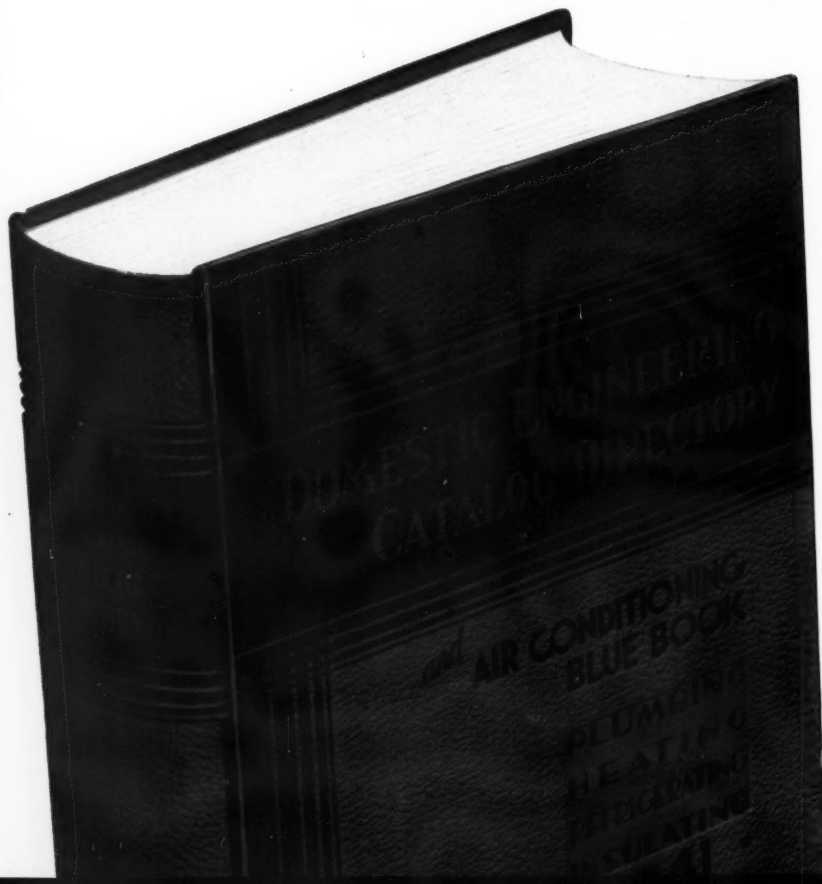
DOMESTIC ENGINEERING CATALOG DIRECTORY is the one complete and centralized source of buying and specifying information for the Heating, Plumbing, Automatic Heating and Air Conditioning Industry . . . And it's specifically designed for wholesalers, buyers, specifying engineers, general contractors or anyone whose duty it is to purchase and specify this equipment.

Even though DOMESTIC ENGINEERING CATALOG DIRECTORY is in its 19th YEAR of service to our Industry . . . 1941 promises to be a year in which its greatest service will be rendered.

Personnel changes will continue to take place during 1941, but DOMESTIC ENGINEERING CATALOG DIRECTORY will be "ALWAYS ACCESSIBLE" . . . READY to serve the Industry in keeping pertinent catalog material constantly before the Industry's Buyers and Specifiers.

ADVANCE ORDERS SHOULD BE PLACED NOW . . . at $5.00

— Transportation Charges Prepaid —



The 1941 Edition Contains:

1 MANUFACTURERS' CATALOG SECTION
. . . offers up-to-the-minute descriptive and illustrative purchasing and specifying information on manufactured products in the Industry.

2 TABLES AND RULES SECTION
. . . contains condensed specifying data in the form of standard rules, tables, charts and layout diagrams on Plumbing, Heating, Automatic Heating and Air Conditioning.

3 CLASSIFIED DIRECTORY SECTION
. . . contains buying information of virtually every known product in the Plumbing, Heating, Automatic Heating and Air Conditioning Industry.

4 TRADE NAME SECTION
. . . shows the Trade Names . . . the items to which they apply . . . and the Manufacturers' names and addresses.

5 NAME AND ADDRESS SECTION
. . . includes the Names and Addresses of all known Manufacturers of Plumbing, Heating, Automatic Heating and Air Conditioning items.

5 SALES SERVICES IN ONE BOOK 1

DOMESTIC ENGINEERING COMPANY
Catalog Directory Dept.
1900 Prairie Ave. . . . . Chicago, Ill.

Bookkeeping—

(Continued from Page 44)

Three hours were devoted to contract job number 1314 and one-half hour to work in the shop which was charged to Expense. On Tuesday this workman spent five hours on the completion of contract job 1316, which is illustrated on the contract cost envelope, Fig. 3. At the end of the week, the card is added vertically and horizontally. With the exception of the first two lines, the hours and amounts at the right are posted to contract cost envelopes. The figure on the total line is the amount the workman has earned. From this amount the old-age annuity contribution is deducted; the net amount payable is then determined. The card next is used in preparing the pay check and in distributing labor on the check record. (See transaction 3, Fig. 6). It gives, in addition, the information needed for posting earnings and deductions on the earnings record, Fig. 12.

From the above explanation it is clear that the time card is an effective gauge on the supply and outflow lines represented by labor. The contractor can easily determine from the card the amount of time spent on a job and, by referring to the cost record of the job, determine if the labor has been profitable. The card is also a chart of original entry leading to the main objective—the profit and loss statement.

ACCOUNTING FOR REPAIR JOBS

The first step in accounting for a repair job is made by the workman, who carries on his truck a quantity of repair job cost reports, Fig. 2, and prepares one for each repair job. All material used, as well as the starting and stopping time, is entered in the spaces provided. The jobs which are to be *charged* to customers are priced and costed in the office. Upon completion of *cash* jobs, the workman enters the selling prices and the retail sales tax on material used. Cost prices, as on charge jobs, are entered in the office. The column headed Cost is used for this purpose. The item "Direct Expense" is not used. Direct expense is the term applied to money expended for permits and for other fees which are chargeable to customers. Such expenditures are not incurred on repair jobs, and a different type of record is used for new construction and remodeling contracts (see Fig. 3).

Needless to say, since cost is one of the two factors (income and outgo) which help to make or break any business, this accounting form for repair jobs is vitally important.

NEW CONSTRUCTION AND REMODELING CONTRACTS

New construction and remodeling contracts frequently require the time of more than one man and usually extend over a period of days or weeks. For these the Contract Cost Envelope, Fig. 3, is used. It is similar in arrangement to the repair job cost report, Fig. 2, but provides more space for listing material, labor, and direct expense. The envelope headed, at the beginning of the job, with the owner's name and address and other pertinent information is filed in the office alphabetically, by owner's name. Material and fixtures used on these jobs are detailed on requisition blanks. These blanks are not illustrated because of space limitation.

Deming TURBO-FLO Pumps are made in two distinct designs: Pump close coupled to motor (Series 8000); and pump connected to motor by flexible coupling (Series 9000).

Compact, powerful, dependable, economical! That's a quick description of Deming TURBO-FLO Pumps. Designed for wells 28 feet deep or less. Self-priming. Separate automatic air pump and water level control. Strainer and check valve integral with pump. Stainless steel shaft, separate from motor shaft. Corrosion resisting metals used for all parts coming in contact with water. All bronze accurately machined impeller. Removable bronze heads. Motor with built-in overload protection. Many other features make Deming TURBO-FLO a real sales builder!

Illustrated Bulletin No. 8000 includes large views of all models of Deming TURBO-FLO Pumps and Water Systems. All important parts of these pumps are illustrated and described in detail. This Bulletin is a valuable aid to selling . . . WRITE FOR YOUR COPY NOW!

DEMING
PUMPS AND WATER SYSTEMS
THE DEMING COMPANY • SALEM, OHIO

FIRST TIME OFFERED
Direct to
SMALL DEALERS
and DISTRIBUTORS

A BEAUTIFUL unit from every standpoint, the SHEPHARD Water Heater is available in any desired color and attractively trimmed with chromium. Made in a range of 4 sizes. All supplied with or without burners and controls.

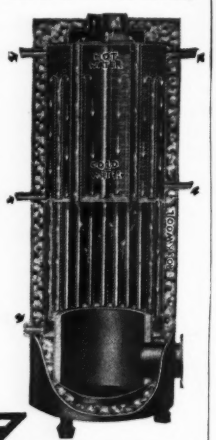
- **Employs *percolator action*. Water passes over prime heating surface *20 times faster* than conventional methods.**
- ***Greater heating surface* provides for greater volume of hot water at *far less cost*.**
- **Due to rapid circulation, *liming* and *rusting cannot develop*.**
- ***Completely arc welded* and tested with pressure to safeguard against leaks.**
- ***Removable refractory* makes for easy cleaning or replacement.**
- ***Adjustable legs* permit installation on uneven floors. Unit fits low basements.**
- ***Galvanized inside and out* to prevent rust or rusty waters.**
- **75% *overall efficiency*. Burns low-grade, low-priced oil. Heats 145 gals. of water 90° F. (from 60° to 150°), with 1 gal. of No. 2 or No. 3 oil at a cost of *only $.0005 per gal.***
- **Available with or without burner and controls. May be adapted to any gun type burner.**
- **May also be used as a boiler-burner heating unit when connected to copper piping and convector radiation. No coil or indirect heater required.**

"*MORE* Heat at *Less Cost!*"

Summed up in those few words is just one of many selling advantages the SHEPHARD Water Heater places at your disposal.

Briefly outlined above are some of the features which stamp the SHEPHARD Water Heater as today's outstanding hot water supply unit. Look these over... study the cross-section view at the right... then judge this unit for yourself!

We believe you'll agree that the SHEPHARD offers you all you'd ever hoped for in a water heater *plus* the added advantage of adaptability to small home heating. Truly "tomorrow's water heater today," this remarkable unit presents opportunities for profit not obtainable with ordinary water heating equipment.



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The total of each requisition is entered on a separate line of the envelope; the requisition itself is filed inside of the envelope. Separate requisitions are used for material and fixtures. Labor is taken from the time card, Fig. 1, at the end of each week and entered in the "Labor" section. The narrow column in the "Labor" section is used for recording hours worked. When it is desirable to cost out a job immediately upon its completion, the workmen employed on that job are asked to turn in their time cards. Only a few minutes are needed to enter the labor information on the envelope: the cards are returned to the men the following morning.

COSTING JOBS

Upon completion of jobs, the office routines for the Repair Job Cost Report (Fig. 2) and the Contract Cost Envelope (Fig. 3) are similar. In the case of the repair job cost report, cost and selling prices are entered in the columns provided. This is because the customer is charged with the selling prices of labor and the material used on the job. On the other hand, the contract cost envelope is arranged with *cost* columns only, because the contracts are based upon quoted contract prices. In both cases, to the total cost is added an estimated overhead.

In one typical business the overhead expenses amount to 17 per cent of sales. Therefore, in order to determine net profit on each job, 17 per cent of the selling price is added to total direct cost in order to arrive at the total cost, which, when deducted from the selling price, gives the net profit on each job. Reference to

"TUBCOAT'S O.K.!"

CONTRACTORS SAY —

"For quick, complete, positive, inexpensive protection for bathtubs during installation, you can't beat TUBCOAT."

For housing projects, for private homes—North, South, East, West, everywhere—contractors are enthusiastically ordering and reordering Tubcoats to protect bathtubs against nicks, scratches, stains or other blemishes occurring during installation.

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PROTECTIVE COVERING COMPANY
1565 Railroad Ave. Bridgeport, Conn.

Fig. 3 reveals that net profit was $18.59. However, the gross profit was $18.59 plus $31.03, or $49.62. The overhead figure is memorandum only, although it is possible to apply overhead to jobs and carry the figures to the general ledger. The latter plan gives management detailed information concerning net profit on each *class of work* (new construction, remodeling, repair jobs).

Some plumbing contractors overlook applying overhead to jobs; their eyes are focused on *gross profit*. Gross profit may not be sufficient to cover the overhead expenses of doing business and provide sufficient *net profit*.

The determination of profit or loss on individual jobs is important to management, yet it is not in itself sufficient. As already stated, the best guide or yardstick for management consists of periodic statements of results. They show clearly how much money has been made in a given month and how it was made. They can be obtained only by carrying each transaction to a *journal* from which summary figures are entered in the *general ledger* at the end of the month.

THE SALES RECORD

When all jobs have been costed they are entered on a Record of Sales, Fig. 4. It will be noted that debit columns have been provided on the sales record for cash sales, accounts receivable, contracts receivable, and trade-ins. The distribution side of the record is made up of both debit and credit columns. One pair of columns is used for each of the sales accounts except repair work (new construction contracts, remodeling contracts, appliance and store sales). In each case one column is headed for the amount of the sale, the other for the cost. In the case of repair work three columns are used; they are headed "Material and Appliance Sales," "Productive Labor Sales," and "Cost." Inasmuch as each sale is individually costed on the repair job cost report or the contract cost envelope, Figs. 2 and 3 respectively, the cost figures are very readily obtainable for entry on the sales record.

At the right of the sales distribution columns will be found five columns under the main heading "Cost Analysis." Subheadings are, "Material," "Fixtures," "Appliances," "Productive Labor," and "Direct Expense." From the contract cost envelope and the repair job cost report, an analysis of the cost element is cleared into these columns so that at the end of the month, the various inventory accounts may be credited with the cost of all items sold.

This somewhat unusual arrangement of the sales record is due to the method of applying the sales tax in California. In most lines of business, the California retail sales tax of 3 per cent applies on the *selling* price of merchandise only; however, because the actual selling price of fixtures and material on plumbing contracts is somewhat indefinite, a special ruling has been made which permits plumbing contractors to apply the sales tax on the cost price of material and fixtures used by them on lump sum jobs; therefore, the sales tax will apply on the *cost* of material involved in new construction and remodeling contracts. On repair work and on appliance and store sales, the tax applies on the *retail price* charged for the material and fixtures used. It is because of this that separate columns are provided for "Material and Fixtures'" and "Labor."

A PROTRACTOR-RULE and a REPAIR HANDBOOK

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Here are TWO handy helps that every contractor and repair man should have, and which are available without charge to the readers of this magazine.

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The instructions in this handbook are based on the experience of thousands of contractors and repair men, and include much information not to be found in any other publication. Some of the subjects covered:

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How to tighten loose parts of apparatus, fixtures, etc.

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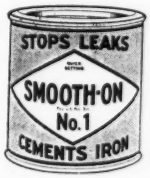
How to make up leak-proof pipe joints.



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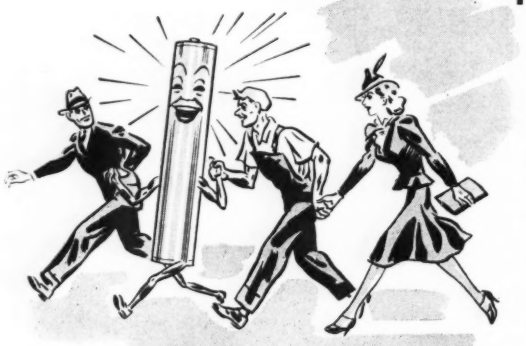

Every Whitehead Monel Range Boiler carries a long life guarantee good for twenty years

IT costs time and money to cultivate customer good will. So take no chances. When you remove a range boiler that *leaks* replace it with one that *won't*. Install a Whitehead!

For Whitehead* Range Boilers and Hot Water Tanks are made of Monel...the metal that never rusts yet is strong and tough as steel. Since Monel is also highly resistant to corrosion, it is good for exceptionally long, trouble-free service, even with highly corrosive water supplies.

As a result, Whitehead Monel Range Boilers are guaranteed for 20 rustless years. Actually they last a lifetime. Yes, everybody is happy when you install a Monel tank—your customers, because you recommend a lifetime tank that renders such satisfactory service—you, because you retain and increase your customers' respect and good will.

Your regular jobber can give you full information on Whitehead Monel Range Boilers. Or, if you wish, write direct to Whitehead Metal Products Company, Inc., 303 West 10th Street, New York, N. Y.

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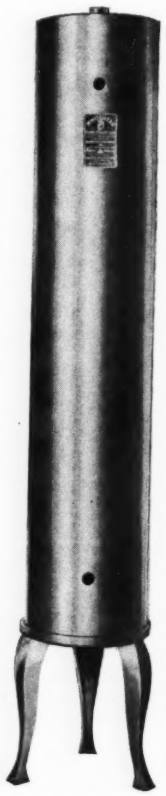


WHITEHEAD

MONEL

RANGE BOILERS

The tax as figured on each individual sale is entered on the sales record direct from the record of the sale itself. However, the California tax is paid by the contractor on the total taxable amount for the period, not on the individual sales. In view of this, it is necessary to determine from the sales record the total upon which the tax is payable. The tax applies on the sales amount of material, fixtures, and appliances when used on repair jobs or sold over the counter. Therefore, the tax is applied to the total of these columns. Since, on contract jobs the tax is figured on the cost of material and fixtures, an "X" is placed at the left of amounts in the cost analysis columns covering such items. The 3 per cent tax is applied to their total.

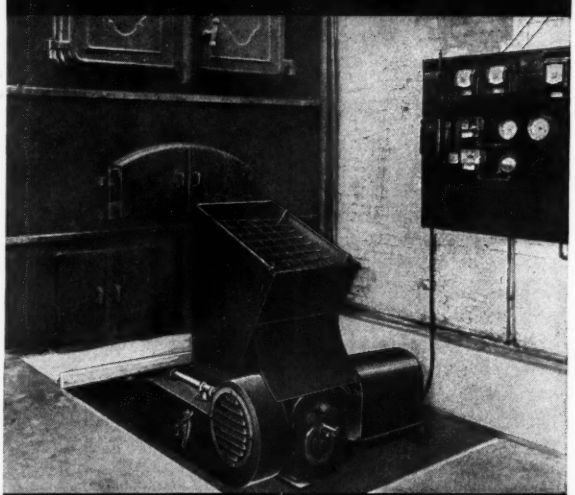
The jobs illustrated in Fig. 2 and 3 appear as the first and second transactions of the sales record, Fig. 4. It will be noted that in both cases the elements of cost as shown on the job records are separated in the cost analysis columns into: Material, Fixtures and Productive Labor.

The third transaction represents the total of cash sales made over the counter during the day. Although several sales were made, these were held and entered on one line at the end of the day. The fourth transaction is an installment sale of a new refrigerator for $250.00. An trade and a cash payment of $22.50 was received.

The author of this series (the next article will be published next month) is Samuel E. Davis, of Charles R. Hadley Company. Forms similar to those illustrated in this article can be obtained through the branches of his company in principal cities. Or write DOMESTIC ENGINEERING.—*Ed.*

HERE'S MONEY TO BE MADE!

Every office building and industrial plant in your vicinity is a potential, profitable customer for FREDERICK INDUSTRIAL STOKERS! *Ask about liberal Distributors' Proposition—No obligation of course!*



The FREDERICK IRON & STEEL CO.

"Builders of Good Stokers for 20 Years"

Eighth & East Sts. Frederick, Md.

Electric Skin House . . .

(Continued from Page 50)

In the Wunderlich home all windows are closed at the beginning of the heating season and kept closed all winter. Thermostatic controls hold the night temperature within the house to 60 deg. F.

"It took us some time to get used to the idea of keeping our windows closed," Mr. Wunderlich says, "but by doing so we were able to eliminate the problem of adding or taking off covers during the night with each sharp fall or rise of outside temperature."

Too often, Mr. Wunderlich believes, humidifying equipment is provided without means of keeping that humidity under control. He points out that, whereas a certain amount of moisture is essential to keep furniture and woodwork from shrinking and rugs from becoming brittle, excessive moisture produces far more damage through condensation within walls and the resulting deterioration.

"No home where there is a means of producing moisture should be without a humidistat for the proper control of that moisture," he emphasizes.

In the Wunderlich home it is the practice to start the heating season with a 40 per cent relative humidity and to reduce this gradually as the season advances, guiding the pace of this reduction by the amount of moisture condensation on the windows. The humidity is reduced to the point where window condensation is not a "nuisance"—to the point where it no longer runs off and is absorbed into the wood. Condensation upon the windows

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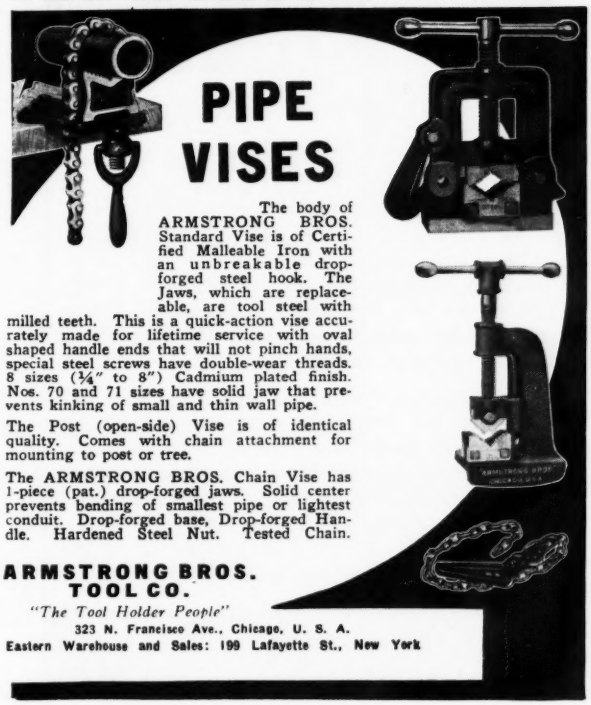

PIPE VISES

The body of ARMSTRONG BROS. Standard Vise is of Certified Malleable Iron with an unbreakable drop-forged steel hook. The Jaws, which are replaceable, are tool steel with milled teeth. This is a quick-action vise accurately made for lifetime service with oval shaped handle ends that will not pinch hands, special steel screws have double-wear threads. 8 sizes (¼" to 8") Cadmium plated finish. Nos. 70 and 71 sizes have solid jaw that prevents kinking of small and thin wall pipe.

The Post (open-side) Vise is of identical quality. Comes with chain attachment for mounting to post or tree.

The ARMSTRONG BROS. Chain Vise has 1-piece (pat.) drop-forged jaws. Solid center prevents bending of smallest pipe or lightest conduit. Drop-forged base, Drop-forged Handle. Hardened Steel Nut. Tested Chain.

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On any job where chain is needed, BEAD CHAIN* adds distinction. For lavatories and tubs; shower curtain hold-backs; for heating and ventilating controls; with new installations or repairs—the use of BEAD CHAIN brings credit to the plumber. Keep it in stock in standard sizes, with couplings and attachments.

USE BEAD CHAIN FOR PLUMBING

ESTABLISHED 1914

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THE BEAD CHAIN MANUFACTURING CO.

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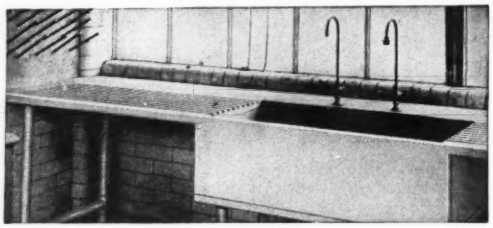
is thus used as an index for the practical regulation of the humidistat. While Mr. Wunderlich feels that the best moisture content to maintain is between 30 per cent and 40 per cent, he runs it down to 20 per cent during the periods when outside temperatures are below minus 20 deg. F.

Great pains were taken in installing the 139 thermocouples in the house. Mr. Wunderlich, assisted by his wife, who is as enthusiastic as he is in the pursuit of these heating studies, had to work at night during the time the house was under construction. In all, more than twelve and one-half miles of wire were strung, working with flashlights. Mrs. Wunderlich has served as her husband's first assistant since the home was built and, for long periods when Mr. Wunderlich had to be away on business, she took over the entire task of taking readings off the terminal board with the aid of a potentiometer and of keeping recordings on outside weather conditions.

The attic of the Wunderlich home has ventilation to the outside. Mr. Wunderlich points out the importance of such ventilation from the heating point of view—for carrying off excess vapor and for bleeding the attic of its heat load during the summer.

In stressing the economy of operation of his heating plant Mr. Wunderlich declares that, in the home his family had occupied before their present one, the annual heating cost had been twice as high and the distribution of heat had been far from uniform. The two homes were identical in size; by proper insulation and a well laid out plant, he has cut his annual heating bill in half.



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These efficient Tank Jackets are made of Careycel, the improved asbestos insulation. Tests prove that these jackets save at least 70% of heat wasted through an uninsulated tank. Sizes to fit all standard tanks; installed in a few minutes. There is a lot of this business to be had and now is the time to get it. Write today — address Dept. 18.

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BRANCHES IN PRINCIPAL CITIES

Questions for Readers

(Continued from Page 49)

of 50 deg. to a hot water temperature of 150 deg. It occurs to me that it would be good economy to install a tank in the basement to act as a pre-heating tank. The temperature of the basement air is 70 deg. Fahr. and since this is 20 deg. warmer than city water entering the cellar, I wonder if it would cut down my fuel costs if this heat is utilized to warm the water before it enters the primary heater; what is your opinion in regard to this matter, Mr. Brown?'

"Mr. Brown . . . 'It is always a pleasure to cooperate with my customers in reducing operating costs of plumbing and heating equipment. Your problem is simplified by the fact that you use only 30 gal. of water per day, because this is such a small quantity that the speed of heat transmission in the differential temperature range 50-70 may be safely dispensed with as a factor and we can proceed to calculations of amounts. The unit of amount for heat is based on one degree increased intensity per pound of water. A gallon of water weighs 8.33 lbs. and conversion of 30 gals. of water to pounds, equals 30×8.33 or approximately 250 lbs.

"'If the basement air raises this quantity of water from 50 deg. to 70 deg. Fahr. the total amount of heat transfer equals 250×20 or 5,000 Btu. You will observe that we have obtained this figure of 5,000 without taking into account anything which would affect it adversely, such as the speed of heat transmission and the heating capacity of the basement air.

NOT JUSTIFIED

"'We will continue our calculations under these most favorable conditions and see how the final result impresses us. You see, Mr. Jones, your primary heater would have its load reduced 5,000 Btu. per 24 hours and now we will seek to discover what this means in terms of fuel costs. Regardless of what fuel we base our estimates upon, the comparative saving, if any, will remain the same; medium fuel oil has a heating value of 138,500 Btu. per gal. and assuming a heating efficiency of 75 per cent equals 103,875 available heat units. The 5,000 units saved by preheating amounts to only .048 gals. and if oil is computed at 8 cents per gallon the saving in terms of money equals $.048 \times 8 = .003$ cents per 24 hours.

"'Your saving amounts to a small fraction of a cent per day and does not justify the initial expense necessary to affect it.'"

Stoneham, Mass. A. C. Hayward.

Refractories . . . . . .

(Continued from Page 45)

While this installation is a low pressure job, it is of considerable size, and provision for expansion should be made if cracks such as the one illustrated are to be avoided."

A letter from a reader of DOMESTIC ENGINEERING, commenting on the problem follows: "I have found that the condition reported in your Readers' Question for November is quite common and believe I have uncovered the cause. The most prevalent fault was the use of

BEAUTY Serviceability

ADJUSTABLE SEAMLESS BENT TUBE TRAP

SEAMLESS CONNECTED WASTE AND OVERFLOW

THE NEW SEAMLESS OCTA-KENT TRAP

Sell Both IN KENT *Tubular Brass Goods*

Beneath the gleaming exterior of KENT Brass Goods is a rugged brass construction which assures long-time, satisfactory service.

Modern conditions demand modern fixtures and KENT Tubular Brass Goods meet this demand most admirably. Let the KENT Trade Mark symbolize perfection in your plumbing installations. Write for descriptive literature today.

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Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel

The Worcester line is complete.
Catalog gladly sent upon request.

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YOUR BEST BET ON ALL GAS VENTING JOBS

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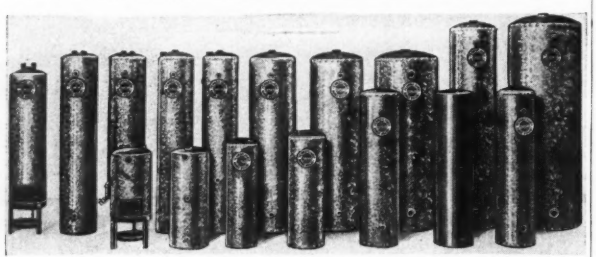

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PENNSYLVANIA RANGE BOILER CO.
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PHILADELPHIA, PENNSYLVANIA

ashes or sand as a fill-in between the refractory and the boiler wall instead of dry pulp asbestos. The ashes and sand absorb moisture and when the fire is run a good deal these materials expand and create more pressure than the brick can stand.

"Another cause is the failure to lay a solid foundation of brick on the bottom of the ash pit; the uneven surface causes a sag in part of the wall, thereby resulting in a crack which will run the entire height of the brick wall.

"I do not believe an expansion joint is necessary. At least, I have found from experience that refractory linings in residential boilers last for many years without them."

OPINIONS VARY

It would seem from the two letters quoted above that opinion as to the effectiveness and need for expansion joints varies. However the two letters are more or less in agreement basically. The writer of the second letter possibly has reference to smaller domestic boilers in which the length of refractory might not exceed 5 ft. in length. A safe rule to follow would be to use expansion joints in all boilers having straight refractory runs of more than 5 ft.

The brick in a domestic boiler are usually laid in "stretcher" courses. This type of course consists of lengths of brick laid parallel to the boiler wall. "Header" courses, or those in which the brick are laid at right angles to the wall, are sometimes used in combination with "stretcher" courses. The former type is used extensively in domestic work and the type of expansion joint shown in Fig. 2 can easily be applied to these courses.

LOWER TEMPERATURES

While brick in a residential boiler is not called upon to stand up under the extremely high temperatures encountered in many industrial applications there is still sufficient heat to cause a considerable amount of expansion. For instance, at 1,000 deg. Fahr., expansion anywhere from 1/16 to ⅛ in. per foot of lineal length may take place. In a ten foot run of brick this would be considerably more than an inch.

Expansion joints in stretcher course of firebrick,

THEY'RE A VITAL PART of the PICTURE

When selling a complete new bathroom or when remodeling old ones, remember . . . SHERWOOD Ball Cocks are a vital part of the picture. Wherever installed they add that final touch so necessary to a fully satisfactory bathroom job. Don't take chances . . . install SHERWOOD Ball Cocks and take a profit.

Order SHERWOODS through your Jobber

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SHERWOOD Ball Cocks

according to some authorities, need be nothing more than spaces left between the brick at predetermined intervals, with corrugated cardboard placed between the brick. In another type of joint, the brick are laid closely against one another and the entire lining is allowed to expand toward the end of the firebox in one complete section. In still other cases, the brick are laid loosely together and each individual brick thus expands to meet its neighbor.

Many factors will influence the life of the refractory in the furnace. Among these are flames impinging directly on the brick and causing a "hot spot" which can usually be cured only by the redesign of the furnace or the control of the burner.

When oil burners are placed too close to the sidewalls of the boiler, the refractory must withstand severe conditions of operation. The back walls should be placed far enough from the burners to be beyond the zones of most intense heat. High temperature bonding mortar—placed on the refractory in a thin coat—will adhere strongly to the brick and will reduce penetration by molten ash and by gases. Good bonding mortar also provides protection from attack by slag and offers resistace to the possible passage of flue gases in and out of the boiler.

MANUFACTURER COMMENTS

In answer to the problem one manufacturer comments as follows: "The photograph shows the fracture of the brick is typical of the breaking or cracking that occurs when an insufficient expansion allowance has been made. Provision for thermal expansion of firebrick should be at the rate of $\frac{1}{16}$ to $\frac{3}{32}$ in. per foot. If the proper expansion allowance is not provided the firebrick will be subjected to mechanical strains and result in the cracking or breaking of the brick.

"Another possible cause of the cracking would be thermal spalling as a result of the rapid heating and cooling of the brick work. However, the amount of spalling can be minimized by the proper design of the brick shapes as well as the proper design, construction and operation of the furnaces. In many cases, spalling difficulties can be eliminated by using a slower heating and cooling schedule."

W. F. Rochow.
Harbison-Walker Refractories Company

IT'S *Profitable*
. . . TO CLEAN AND RUSTPROOF BOILERS
The RUSTBUSTER *Way*

● It's the simple, SURE way to dissolve rust, scale, oil films . . . to prevent corrosion . . . to greatly improve efficiency of ENTIRE heating system . . . to increase your profits! Contact your supplier or write direct.

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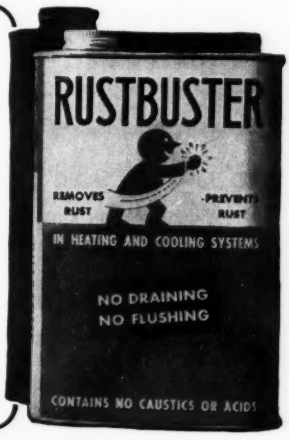

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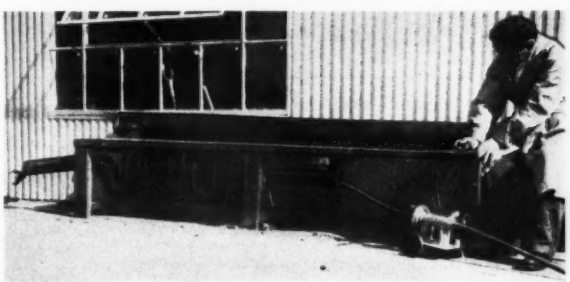

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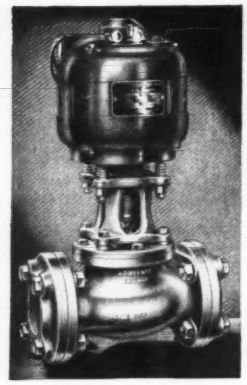

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AT LEFT: The Kainer Circulator.
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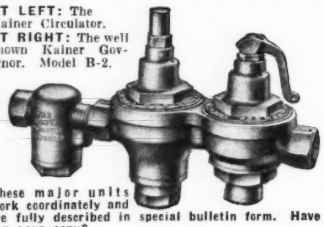

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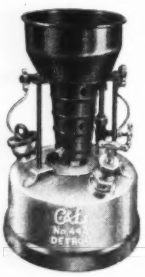

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Govt. Specifications . . .

(Continued from Page 54)

SPECIFICATIONS FOR BROOM AND UTILITY CABINET

Broom and utility cabinet shall be approximately 13" deep, 7'0" to 7'2" high and 21" wide. Base shall be totally enclosed type, painted black, and recessed to allow ample toe space. Cabinets to be furnished with handles of concealed or projecting type, rust proof metal or plastic. Cabinets can be furnished with one or two doors (state which). Cabinets shall be furnished with (2) adjustable steel shelves. Doors to be double construction at least ½" thick.

All cabinets shall be constructed of furniture steel free from buckles, pits and imperfections to insure permanent durability. All parts shall be assembled by electric spot welding for maximum rigidity and strength. All cabinet fronts, sides and drawer and door fronts shall be manufactured of 22 gauge steel or heavier. All linings, compartments and partitions shall be made of 24 gauge or heavier.

Hinges shall be of heavy gauge steel sturdy and sag proof. Catches shall be of a self-adjusting type, noiseless in operation, to hold doors secure. Doors shall be insulated to eliminate noise and shall close on rubber cushioning bumpers. All cabinets shall be sprayed inside with a prime coat and finished with an enamel sprayed on and baked at a high temperature to result in a permanent white glossy finish.

All cabinets shall be packed in approved type containers suitable for all-rail, water and express shipments, to insure safe delivery. All cabinets shall be fabricated clean and free from sharp corners, points and edges, and shall embody first-class workmanship in all respects. All cabinets shall be completely assembled and ready for easy installation.

SPECIFICATIONS FOR WATER HEATER, KEROSENE BURNING SIDE ARM TYPE

This specification covers kerosene burning side arm type water heater for use with range boiler or other types of hot water storage tanks.

Coil or heating element shall be seamless copper tubing coil, or cast bronze heating element, terminating in ½ or ¾ inch standard pipe thread connection for connecting to standard 30 or 40 gallon range boiler.

Burner shall be of the asbestos ring or wick type. Flue connection shall be standard for 3 or 4 inch galvanized smoke pipe. Fuel tank shall be maximum 2 gallon capacity with ball and spring release valve for barometric feed equipped with gauge.

Suitable adjustment shall be provided to regulate oil flow and to shut off burner. Water heater to be constructed to properly burn standard grade of kerosene. Recovery rate shall be at least 12 gallons per hour, figured at 60° F. temperature rise. Finish to be of satisfactory type to prevent corrosion.

Water heater shall be listed as standard by Underwriters' Laboratories, Inc., and to conform to their standards for safety and construction. Heater shall be substantially protected by satisfactory packaging for shipment, and is to be furnished with complete installation and operating instructions.

SPECIFICATIONS FOR BASE CABINETS

All cabinets shall be constructed of furniture steel free from buckles, pits and imperfections to insure permanent durability. All parts shall be assembled by electric spot welding for maximum rigidity and strength. All cabinet fronts, sides and

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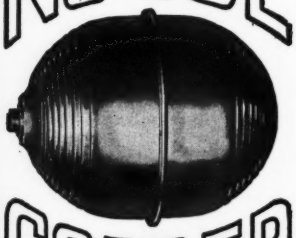

COPPER FLOATS

drawer and door fronts shall be manufactured of 22 gauge steel or heavier. All linings, compartments and partitions shall be made of 24 gauge or heavier.

Hinges shall be of heavy gauge steel sturdy and sag proof. Catches shall be of a self adjusting type, noiseless in operation, to hold doors secure. Drawers shall be furnished with brass drawer slides or equivalent for minimum amount of friction. Drawers shall be equipped with drawer stops to prevent drawers from falling out accidentally but to permit removal for cleaning. Doors shall be insulated to eliminate noise and shall close on rubber cushioning bumpers.

All cabinets shall be sprayed inside with a prime coat and finished with an enamel sprayed on and baked at a high temperature to result in a permanent white glossy finish. All cabinets shall be packed in approved type containers suitable for all rail, water and express shipments, to insure safe delivery. All cabinets shall be fabricated clean and free from sharp corners, points and edges and shall embody first-class workmanship in all respects. All cabinets shall be completely assembled and ready for easy installation.

Base cabinets shall be approximately 24" to 26" deep and 35" to 36" high and shall be furnished in 21" to 30" widths. (State size when quoting.) Base cabinets shall be furnished with white porcelain enameled steel, or stainless steel, or linoleum, or other tops commercially used. (State type of top when quoting.) All doors and drawer fronts shall be at least ½" thick, double construction.

Cabinets shall have one drawer extending across entire width and shall be equipped with dividers to afford a cutlery compartment. Cabinets shall have completely enclosed bottom compartment with one shelf.

Bases shall be solid type painted black and recessed to allow ample toe space. Cabinets can be furnished with one or two doors. (State which.)

SPECIFICATIONS FOR WARM AIR FURNACE, BLOWER AND AUTOMATC HEAT REGULATING EQUIPMENT

Furnace: The furnace shall be either cast iron or steel type designed for manual firing of coal and shall be capable of generating enough heat to deliver not less than 45,000 B.t.u. at the registers when operated at a combustion rate of 7½ pounds of coal per square foot of grate area, with coal having a B.t.u. content of 12,500 per pound. The furnace shall be rated in accordance with the formula given in the technical code of the National Warm Air Heating and Air Conditioning Association. The grates shall be actuated from the outside of the furnace by a shaker mechanism and lever. The entire furnace, except front, doors, etc., shall be enclosed in a galvanized steel casing constructed of not less than 26 United States standard gauge material. A galvanized steel or black steel inner liner also shall be provided. The bonnet of this casing shall be of the straight side type, suitable for the installation of a plenum chamber.

Blower: The blower shall be the standard catalog product of a reputable manufacturer and shall have a capacity to deliver 600 C.f.m. against a static pressure of ⅜" of water. The blower shall be rated and constructed in accordance with the National Association of Fan Manufacturers and the A.S.H. and V.E. code for the testing of centrifugal and disc fans. The impeller wheel shall be of the multi-blade type and shall be statically and dynamically balanced. The blower unit shall be connected to the driving motor by means of an approved "V" belt drive. The motor shall have adequate horsepower for delivering the necessary air and shall be an approved

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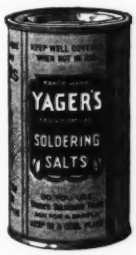

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induction type. The motor shall be for 115 volt, single phase, 60 cycle, alternating current. The motor shall be provided with thermal over-load protection and shall be arranged for control as hereinafter specified under the automatic heat regulating equipment. Blower and motor shall be mounted on a common base suitable for installation on vibration damping media.

Automatic Heat Regulating Equipment: The automatic heat regulating equipment shall consist of a low limit bonnet thermostat so arranged as to interrupt the motor circuit and prevent operation of fan when the bonnet temperature is below the setting of the low limit.

Fort Sheridan . . .

(Continued from Page 28)

room of the messhall. A 50 hp. high-pressure boiler has been placed alongside the other one in this building to furnish steam for the kitchen equipment, etc.

Each barrack has a single toilet room with an adjoining shower room. The toilet rooms contain six water closets, seven lavatories, three shower heads and one slop sink.

In view of the current discussion on the types of building contracts being let for Government defense projects, it is interesting to note that the Fort Sheridan construction was let on the time-honored competitive bidding system. Army authorities have emphasized their view that this type of contract should be used wherever possible. When time is the main essential, however, contracts are often let on the so called cost-plus-a-fixed-fee basis to one general contractor, who is then responsible for the entire job, including plumbing, heating and air conditioning.

The general contractor, in the Fort Sheridan case, let the plumbing and heating to three subcontractors. To the subcontractors, the job was obtained through competitive bidding in a manner similar to other jobs.

Chas. A. Schiemann, Chicago—one of the heating contractors—is very busy right now with this and other national defense jobs. His first work at Fort Sheridan consisted of a boiler and radiator job in the permanent officers' headquarters at the Fort. Recently, he completed a power plant installation at the nearby Great Lakes Naval Training Station, which consisted of four boilers which weighed 21 tons each.

Mr. Schiemann also has several sizable jobs at Chanute Field, Rantoul, Ill. These consist of heating installations in two theaters, a double-sized airplane hangar, a hospital and a 2,200 man barracks building.

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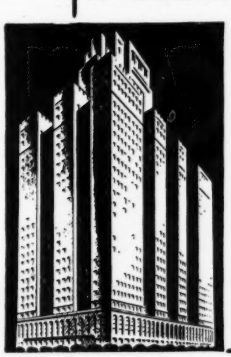

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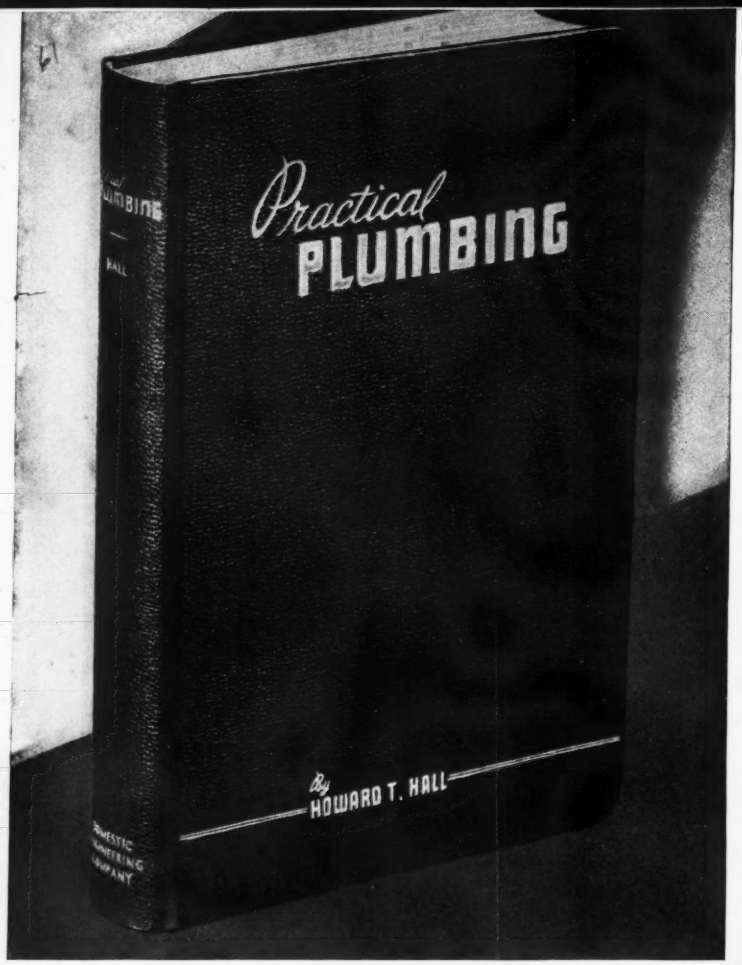

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